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CONSTRUCTION, EQUIPMENT,
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OF A
GENERAL HOSPITAL.

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CONSTRUCTION, EQUIPMENT,

AND

MANAGEMENT

OF A

GENERAL HOSPITAL.

BY

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MEDICAL SUPERINTENDENT OF THE WESTERN INFIRMARY, GLASGOW.

WITH PLANS AND ILLUSTRATIONS.

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THIS BOOK IS
RESPECTFULLY DEDICATED
TO
SIR HENRY C. BURDETT, K.C.B., K.C.V.O.,
IN TOKEN OF THE
UNRIVALLED EXCELLENCE OF HIS WORK ON
BEHALF OF HOSPITALS.

PREFACE.

I HAVE now for more years than I care to think about been collaborating with architects and with public bodies in planning new Hospitals and in modernising existing Hospitals. In work of this kind one naturally becomes the victim of a large and increasing correspondence. One is constantly asked to indicate what is necessary for this institution or for that part of another institution; and in time begins to feel that his views require some definitive expression. Such is the genesis of the present volume. It must, of course, be kept in view that the theory of Hospital construction is a living thing, and that it is not possible at any stage to say that a climax of excellence in design has been reached. In issuing this book I trust that it will not be supposed that the views which I have endeavoured to inculcate are to be taken as an indication of finality in design or equipment. Each generation regards with a certain feeling of superiority the work of its predecessors. But, as we travel along the road of progress, we perhaps confer some benefit on our contemporaries by placing a milestone at the wayside. For this volume I claim no more than that it may be one such milestone.

I have, perhaps, been exceptionally fortunate in finding at my hand work that has engrossed the best of my energies. Since I became a Hospital Superintendent I have seen many advances in the theory and practice of Hospital construction. To some of these I may have contributed. I have always felt that Hospitals are sacred edifices, and that neither pains nor expense should be spared in fitting them for their high object. I am glad to find that it is in this light that they are now universally regarded, and for this reason I have the less hesitation in advocating the best methods of construction.

I have been indebted to so many friends and to so many Hospitals in this country, on the Continent, and in America for ideas and suggestions, that I find it difficult to single out any person or Hospital for special mention. I cannot, however, conclude without expressing gratitude to the Managers of the Western Infirmary of Glasgow, for the unfailing encouragement which they have given to every scheme calculated to promote the welfare of the patients, and to whose progressive spirit and zeal for efficiency I owe the facilities I have had for acquiring knowledge of the best materials and methods of construction.

DONALD J. MACKINTOSH.

WESTERN INFIRMARY, GLASGOW,
September, 1909.

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CONSTRUCTION, EQUIPMENT,
AND
MANAGEMENT
OF A
GENERAL HOSPITAL.

CHAPTER I.

THE GATE HOUSE OR ADMISSION BLOCK.

I.—PLAN AND CONSTRUCTION.

Function and Utility of Admission Department.

IF the efficiency of a Hospital, and the perfect working of its departments, are to be secured, the proper management of the Admission Department is of the greatest importance. When one considers the number of applicants of all ages in various stages of disease, and the number of accident cases of every degree of severity that daily present themselves seeking admission, it will be evident that the most careful supervision must be exercised on the very threshold of the Hospital. It is essential that every precaution be taken against the admission of an unsuitable, or the refusal of a suitable, case. It is necessary to instance only such a case as that of a patient with delirium tremens admitted to a general ward at a late hour, or a case of infectious disease admitted through an oversight, or a case refused admission and dying on the way home, to illustrate the trouble and danger which might arise should the supervision exercised over this department not be systematic and thorough.

To secure this proper control, it is necessary that the Admission Department should originally have been designed for the purposes in view. It is not sufficient to utilise any available rooms in, say, the basement of the building, where patients may be casually interviewed by a house surgeon or physician. The Admission Block should be designed and equipped as carefully as any other department of the Hospital.

Within recent years much more attention than formerly was considered necessary has been devoted to the details of construction of this department ; but even in the best type of Hospital there is still much to be desired in this respect. It is essential that an architect in designing any building should have an accurate idea of all its requirements and of the use to which each foot of space is to be put ; for, unless he is furnished with this information, it is not possible for him to design his building so as to include every necessary detail. I shall accordingly endeavour to enumerate the various points which an architect should have before him in designing the Admission Department of a general Hospital.

Situation, &c.

The Admission Department should be conveniently placed on the ground floor of the Hospital ; or, preferably, it may be a detached building, with a large court where ambulance wagons or other vehicles may easily pass each other on approaching or leaving the institution. The entrance to the Admission Department for patients should, if possible, be entirely separate from that for the staff, visitors, and students. An additional entrance should be provided for patients' friends on visiting days, in order that they may be able to enter the Hospital without passing through the patients' entrance, or coming into contact with an accident case or other patient seeking admission. If possible, the visitors' entrance should be placed in such a position that a verandah may afford protection from rain or inclement weather. The patients' entrance door should be protected by a covered porch, so that patients may be removed from the ambulance or cab to the examination room without being exposed to the weather or to the gaze of inquisitive onlookers. This door should be sufficiently wide to allow two hand ambulances or barrows to pass should it be necessary to bring these out to the ambulance or cab, and to facilitate this the floor of the entrance hall should be, as nearly as possible, on a level with that of the outside porch. Adjoining the entrance vestibule, lavatory accommodation should be provided for persons of either sex who may accompany the patient. Lavatory accommodation should also be provided for porters on duty. All lavatories should have a cut-off ventilating passage.

Administrative Requisites.

A recess in which to store ambulance barrows should adjoin the entrance, and this recess must be in proportion to the size of the Hospital, in order that a hand ambulance may always be available when an accident or urgent case arrives. The vestibule should lead into a large waiting hall with an inquiry office at its entrance, provided with a telephone exchange, private exchange box, and letter and parcel racks. If possible, a window of the inquiry office should command a view of the main entrance. A suite of rooms should be provided for the casualty medical officers, so that a medical officer may be always at hand and prepared to attend patients immediately on arrival.

Leading off from the waiting hall, well-lit examination rooms should be available for the thorough examination of patients, both male and female, the number of rooms varying, of course, with the size of the Hospital and the amount of work to be overtaken. Each examination room should be fitted with a wash-hand basin and sink, and a plentiful supply of hot and cold water.

Two casualty rooms, with recovery rooms adjoining, should be fitted up as small operating rooms for the treatment of minor accidents. A special room should also be furnished with an X-Ray outfit, and arrangements should be made whereby this room can be readily darkened so that suspected fractures, &c., may be examined with the fluorescent screen.

Adjoining the Admission Department two small wards should be provided for the accommodation of intoxicated patients or noisy cases unfit to be placed in the general wards. To these "emergency wards" must be attached the usual bathroom and lavatory accommodation, nurses' duty room, ward kitchen, and urine-testing room or small laboratory. These wards should have double windows in order to prevent noise being heard outside.

Construction and Finish.

The interior walls of the Admission Department should, as far as possible, have a smooth and impervious surface in order that they may easily be cleaned. All angles should be avoided and all corners should be rounded. Although glazed tiles are open to the criticism that they have numerous joints, they probably make the most suitable wall yet devised, as they can be washed down at very small cost. The corridors and waiting hall should be tiled to a height of 6 feet 6 inches, and the upper walls covered with Parian or Kean's cement, and treated with three coats of flat paint and two coats of enamel, or, with what is equally suitable and less costly, enamelette. The floors of the passages, corridors, and examination rooms throughout the department should be covered with terrazzo, which is a mixture of Portland cement and marble chips. A margin of one foot round the waiting hall should be treated in the same way, and the terrazzo carried up this same distance on the wall to join the tiles. The remainder of the floor of the waiting hall should be covered with a hard wood, such as American maple or teak. As these floors require to be frequently washed, oak is less suitable. Oak very soon becomes destroyed with water ; the same trouble is experienced with pitch pine. The doors should also be made of a hard wood, preferably teak, and have no mouldings or grooves where dust can lodge. They should be wide enough to admit with ease an ambulance barrow or bed. In no case should the doors of an examination room be less than 3 feet 6 inches in width.

Plan of Admission Block.

To facilitate a complete understanding of the varied medical and surgical work which has to be provided for in designing the Admission Block, and the most effective method of carrying it out, I shall now explain the accompanying plan of an Admission Block designed to embody the principles just enunciated. (Plan No. 1.)

Description of Plan.

All accident cases and patients seeking admission to this Hospital enter through the central gateway. On the left is shown the porters' room, where a porter is always in readiness to attend to any applicant. This room has suitable accommodation for parcels, letters, telephones, &c., and adjoining it is a small lavatory for the use of porters. At the side of the porters' room is the entrance to the central waiting hall, which is lit from the roof. On one side of this hall are examination and dressing rooms for males, with lavatory accommodation ; on the other side similar provision for females, with the addition of a nurses' duty room. At the end of the central hall are two operating theatres, with a recovery room adjoining each ; one operating room being for males, the other being for females. Between those operating rooms are rooms for sterilisers and dressings. An X-Ray examination room is provided beyond the male examination rooms on the right of the hall. In the basement, under the entrance hall and operating theatres, are two bathrooms for males and two for females, with w.c.'s for each. The remainder of the basement is used as a store for patients' clothes, and a hot air chamber is provided for purposes of disinfection. The basement can be reached by a lift or by a wide staircase situated at the end of the waiting hall.

In the plan provision is made for the Medical Officer on duty. This is a new, but essential feature, in an Admission Block, and is designed to secure that no patient shall be kept waiting for more than a few minutes before being seen. At present regrettable delay often takes place, and much dissatisfaction, not to say suffering, may arise from this defect in the construction and administration of a general hospital.

Admission Department of Maternity Hospital.

Plan No. 2 shows the Admission Department of a modern Maternity or Lying-In Hospital.

There is a covered carriage-way which allows of patients being removed from the ambulance or cab without being seen from the street. On the right of the entrance is the porters' room and telephone exchange, with an inspection window into the vestibule, so that the porter can see every one who enters or leaves the Hospital. On the opposite side of the corridor is a waiting room, and adjoining it is the preliminary examination room. Here every patient is examined by the admitting Medical Officer ; if the patient, after examination, is not considered suitable for the general maternity wards she is at once taken across the cut-off ventilating passage to the isolation block. In this way no undesirable case ever enters the examination room proper, but is dealt with in the preliminary examination room and immediately transferred to the isolation house. If the patient is suitable for admission to the general wards she is passed into the undressing room, where her clothes are removed and she is clad in a Hospital gown. She is then taken into the bathing room. This room is fitted up with a fireclay slab and sprays (Plate 1), and there she is thoroughly washed and scrubbed before being removed into the examination room.

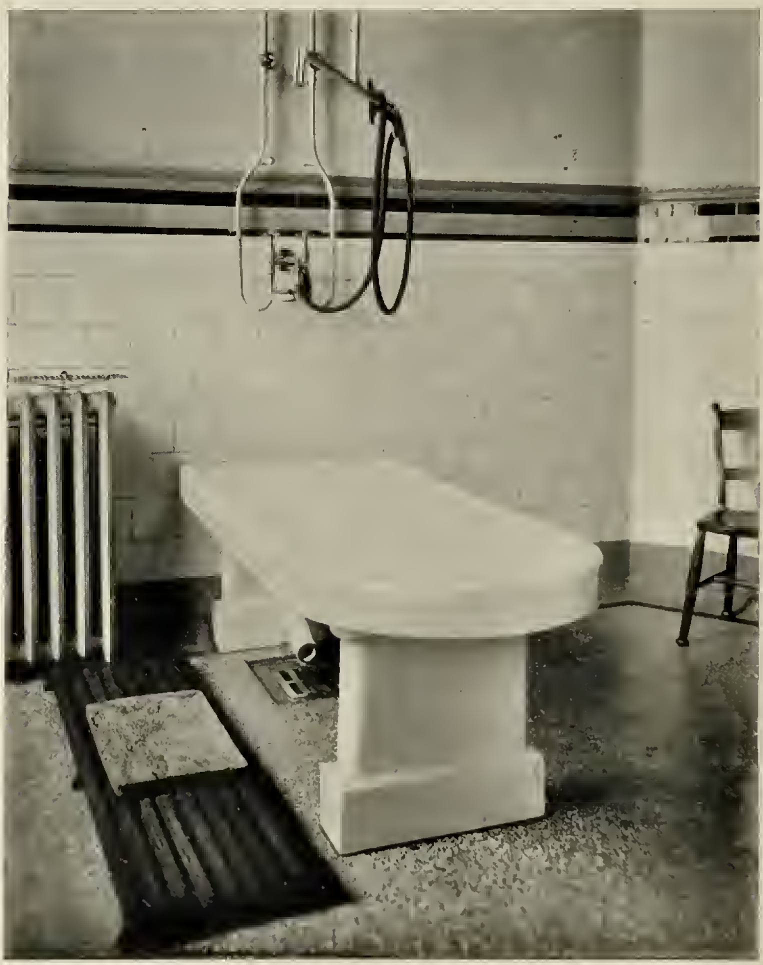


Plate 1—Fireclay Slab and Sprays for Admission Department.

In this room the patient is thoroughly examined and attended to, and afterwards removed on an ambulance trolley by the lift to the labour room.

All the examination rooms have tiled walls and terrazzo floors, so that after each case the room can be washed with a hose, thus averting any possibility of infection being carried from one patient to another.

This arrangement under which there are two examination rooms—a preliminary examination room and an examination

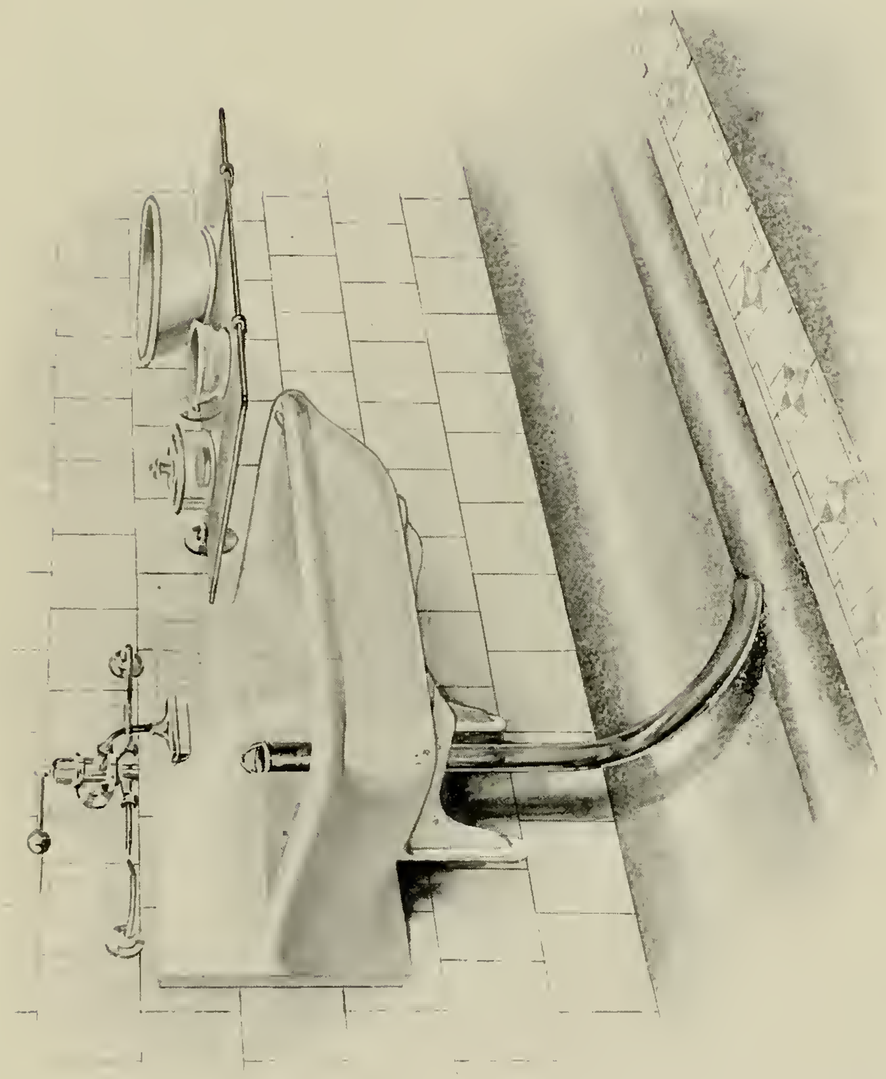


Plate 2—Basin for Operating Room.

room proper—is somewhat novel, but experience has proved its great utility, in so far as it ensures that no undesirable case can possibly reach the examination room or the labour room. Such precautionary measures are fully justified.

Plumber Work.

Special attention should be paid to the plumber work; all pipes should be exposed, and all basins, sinks, and fittings should be of the simplest possible type. Plates 2 and 58 show a very good and simple basin made of fireclay, suitable for an examination room or casualty operating room. The supply of hot and cold water to the basin is worked by means of an arm lever, and no taps are required. Another advantage is that the cold water always comes first, and there is no danger of being scalded.

Plate 3 illustrates a serviceable type of sink, also made of fireclay, in which there is a standing waste, acting also as a plug. The basins and sinks should discharge into an open gutter, protected at the end by means of a trap covered with a movable grating.

The other fittings in the examination room should be as simple as possible. They should be made of enamelled iron, and have ball-bearing castors to facilitate their being moved.

II.—THE THOROUGH SUPERVISION OF THE ADMISSION BLOCK.

Personal Responsibility of Medical Superintendent.

The Superintendent of the Hospital should keep in direct touch with all that is going on, and satisfy himself that everything is in order, especially that applicants for admission, their friends, and visitors to the Hospital are treated with courtesy and tact. He should also be ready to give advice or assistance to the junior medical officers when such is required.

The Superintendent should be responsible for the admission or refusal of every patient; this, of course, implies the possession of a medical qualification. After the patients are admitted they are under the care and direction of the visiting medical and surgical staff, but no applicant should be refused admission without the sanction of the Superintendent, or, in his absence, of his responsible deputy.

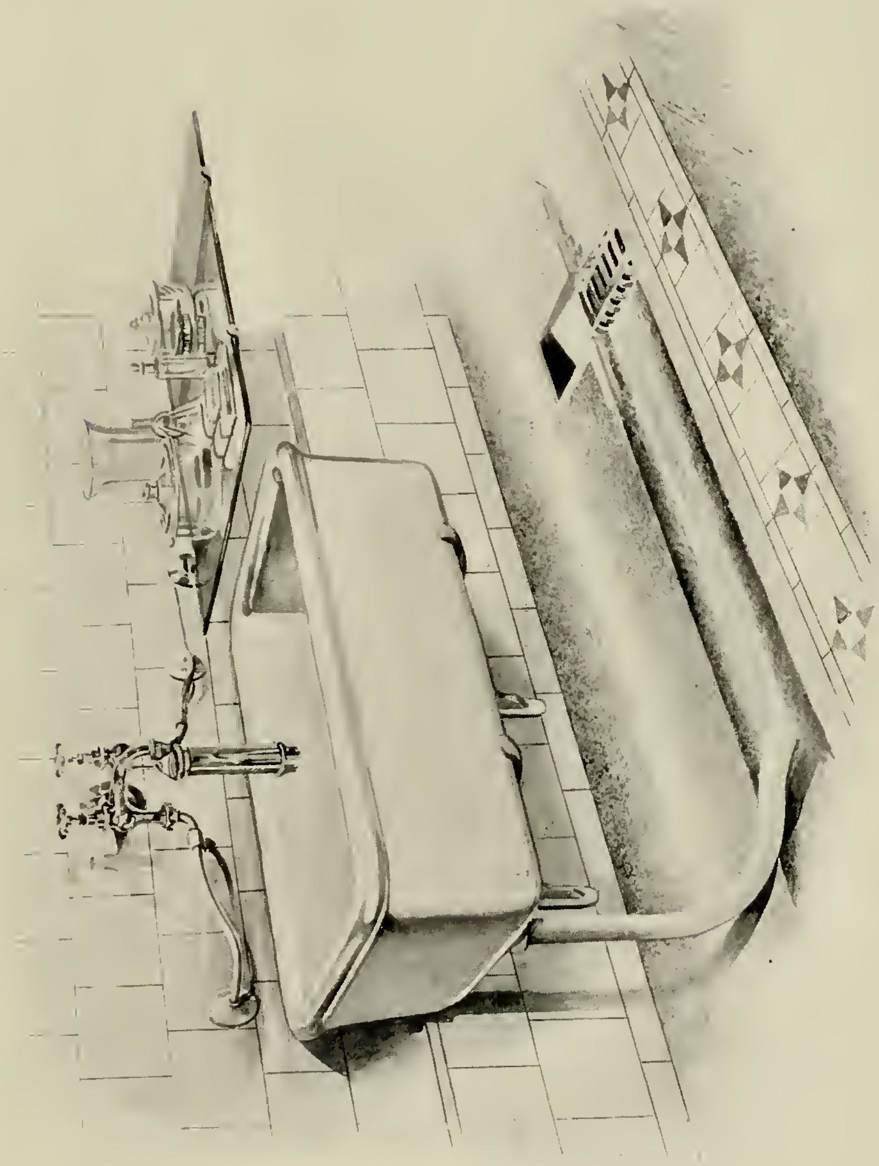


Plate 3—Serviceable type of Sink.

Porters.

In a Hospital connected with a teaching school, the number of attendants will necessarily be greater in proportion to the number of beds than in a Hospital which is not a teaching school. But it must be kept in mind that a Hospital containing 800 beds does not require twice as many porters as a Hospital with 400 beds; nor does a Hospital with 400 beds require twice as many porters as one with 200 beds. For a Hospital, which is also a teaching school, containing, say, from 500 to 550 beds, a janitor should have the assistance of six or seven porters. The janitor is responsible to the Superintendent for the work and good conduct of all the men under him; he sees that they are punctual and attentive to their duties, courteous to visitors, and careful in the handling of patients. He should also be responsible for all letters and parcels delivered at the institution, and should see that they are regularly distributed. A note should be made if letters and parcels are opened or defaced when delivered, and the postman should be required to endorse this. The Admission Department should never be left without a porter in attendance. In order that no confusion may arise, it should be clearly understood that when an ambulance attendant or a policeman hands over a patient to the Hospital staff and gives his report his responsibility ceases, and on no account should such an attendant be permitted to offer suggestions regarding the patient.

Admission of Patients.

In every well-appointed and properly-managed Hospital a porter will be at hand when the patient arrives at the entrance. In the first instance a careful note is made, on the forms provided for the purpose, of the following particulars regarding the patient: Date, full name, age, full address, occupation, religion, whether married or single, the exact time of admission, and the time when the patient is seen by the Medical Officer, whether there is, or is not, any infectious disease in or near his residence, whether the patient has previously visited that or any other Hospital, whether the patient is in receipt of poor-law relief, and any other detail that might be useful in the future management of the case.

For example, it is important that the number of the flat in which he resides should be noted, so that, in the event of an urgent message being conveyed (say, at night) to his friends, there may be no difficulty in exactly locating the dwelling. This applies more particularly to Scottish Hospitals. While the porter is obtaining all the necessary details from such relatives or friends as may accompany the patient, the Medical Officer will have been summoned. The following is a copy of the admission form :—

ADMISSION FORM.

Date,..
Name, ... Med. or Surg...............
Age,............ Country,............ Religion,............ Soc. Cond............
Occupation, ...
Residence, ...
Infectious disease in or near Residence,...
Previous visits to this or other Hospitals, ...
Does Patient receive Poor-Law Relief?...
Subscriber's Letter or Doctor's Recommendation, ...
Other Letter, ...
Entered by.. Time,...............
Examined by... Time,...............
Result,...

Medical Examination.

Every patient seeking admission should be carefully examined by the Medical Officer on duty for the day, and, as already stated, no patient should be refused admission until seen by the Medical Superintendent or his deputy.

Should the Medical Officers on duty consider any patient unsuitable, they will fill in the following form for transmission to the Medical Superintendent and await his decision :—

CERTIFICATE OF PATIENT'S UNSUITABILITY FOR HOSPITAL.

We hereby certify that we have examined.. and do not consider that he is a fit patient for admission into the Infirmary for these reasons :—

....
....
....
....
.................................Resident Assistant.
......................Supt. ....Resident Assistant.

It then rests with the Medical Superintendent or his deputy to see the patient and give a final decision.

Treatment of Patient Admitted.

If the case is suitable for admission, the porter will receive instructions to convey the patient direct to the ward to which he is assigned, and, should the patient be a male, the porter may be required to assist in undressing him. This he should do with as little inconvenience to the patient as possible. If there is no special urgency in the case, the Medical Officer will give instructions for the attendant to remove the patient to the bathing department, where he should be stripped and bathed. If necessary his clothes should be treated in a disinfectant, and should thereafter be stored until his discharge, or sent home with any relative who may accompany him. After the patient is bathed he should be wrapped in hospital garments, covered with blankets, and removed to the ward. A careful note should be made of all money or valuables in the patient's possession, and such valuables should be handed over for lodgment in the safe. Special care should be exercised in the bathing of children and helpless patients.

The nearest relative present should accompany the patient to the ward and be allowed to remain till the house surgeon on duty has obtained the history and full details of the case. Before leaving the Hospital the relatives should be furnished with a visiting card stating the visiting days and hours and the rules to be observed in visiting patients. Any correspondence which accompanies the patient from his medical adviser should be handed at once to the Medical Officer on duty, and should accompany the patient to the ward in order that the house physician or surgeon under whose care the patient is placed may have the fullest information available. Neglect to observe this simple rule may cause much confusion and delay in the subsequent treatment of the case.

Contagious or Infectious Disease.

If there is any suspicion that the patient suffers from an infectious or contagious disease, he should be retained in the examination room till after consultation with the Medical Superintendent. If the case proves infectious the room should be closed, the sanitary authorities notified, and the patient removed as soon as possible to a Hospital for infectious diseases. Before the room is used again it should be thoroughly disinfected and washed down. The walls of the consulting rooms being tiled, this can be expeditiously and inexpensively accomplished.

When a case of poisoning is admitted the house physician should deal with it on the spot. An "emergency outfit" containing stomach-syphon, antidotes, and everything that might be required, should be fitted up in a sealed cupboard in a small emergency dispensary, &c., near the Admission Department. The object of the seal is that the dispenser may see every morning whether the apparatus and contents have been used, in order that he may put in a new supply, so that no possible emergency can occur without fresh remedies being at hand. It is always advantageous to have in this cupboard a description of the usual antidotes in cases of poisoning. Plates 5 and 6 illustrate this emergency dispensary, with cupboard containing antidotes and serums, cylinders of oxygen, and emergency drugs.

Plate 4—Room used for Isolating Suspected Infectious Cases.

Criminal or Suicide Case.

If a criminal case or a case of attempted suicide is admitted, the Medical Officer on duty should notify the police authorities at once, unless there are special reasons for omitting this procedure.

Dangerous Illness.

When a patient is admitted so seriously ill that there is immediate danger to life, the relatives should be informed without delay.

III.—RECORDS.

The following records should be kept in the Admission Department :—

1. A General Register.—This should give the date, number of patient in this journal, name, number in the Surgical or Medical Journal, age, whether married or single, full address, person recommending (employer or doctor), accident or emergency, whether from out-patient department, nature of ailment (whether medical, surgical, gynæcological, &c.), a note of the medical officer who examines the patient, and the ward to which the patient is sent. A column should be reserved for "remarks." This journal should contain a record of every patient who seeks advice or admission, whether treated or not, as separate admission journals must be kept for the in-patient and out-patient departments.

General Register of Applications.

Each page of this Register contains columns under the following headings:—

Date.
Journal No.
Name.
Register No.
Age.
Social Condition.
Address.
Recommender or Employers.
Accident or Emergency.
From O.P.
On Book.
Medical or Surgical.
Examined by
Ward.
Remarks.

2. A Bed-Book.—This should state every day the number of patients in each ward in the Hospital, distinguishing males from females, and noting the number admitted, dismissed, and died. The same book should contain a record of the name, age, and ward-number of each patient admitted and dismissed, giving at the foot a summary of the total number admitted to each department, and the total number of patients in the Hospital each day.

3. A Medical and Surgical Register.—This book should contain the date, number on the General Register, number of ward, age, country, whether married or single, occupation, full address, person recommending or medical adviser, number of days the patient has been in the Hospital, nature of disease

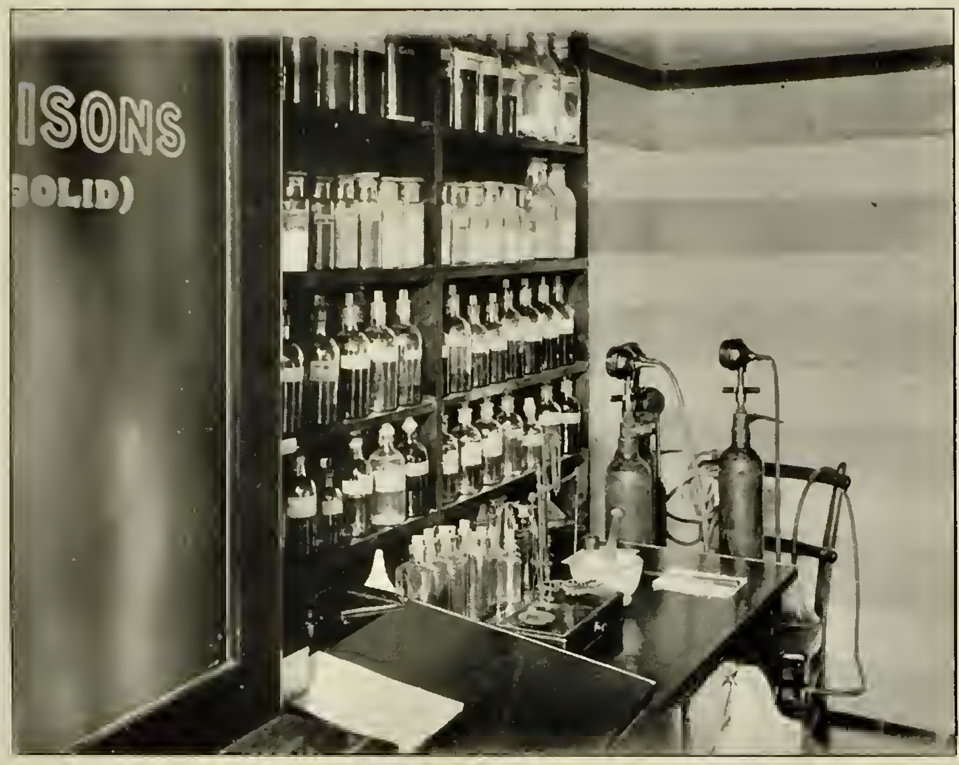


Plate 5—Emergency Dispensary (detailed view).

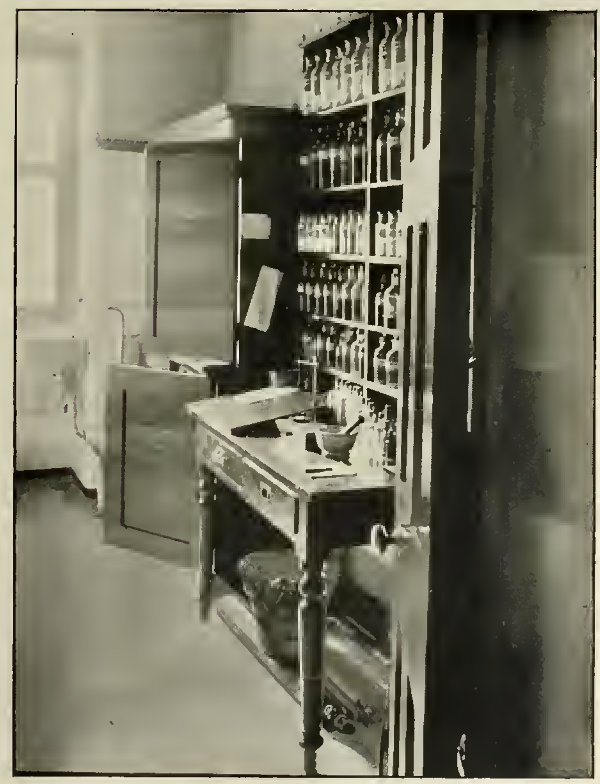


Plate 6—Emergency Dispensary (general view).

or injury, date of dismissal, and result; a space should be reserved for "remarks," such as cause of death, reason for dismissal, whether patient was sent to Convalescent Home or received assistance, such as from the Samaritan Fund, &c.

DAILY BED BOOK.

MEDICAL.									SURGICAL.								
WARD.	Admitted.		Dismissed.		Died.		TOTAL.		WARD.	Admitted.		Dismissed.		Died.		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.	M.	F.

Admitted or Dismissed.	NAME.	Age.	Ward.	Admitted or Dismissed.	NAME.	Age.	Ward.

4. An Abstract-Book.—This should give a summary of the foregoing details in order that the number of patients in the Hospital may be compared from day to day, month to month, and year to year.

REGISTER OF MEDICAL CASES.

Date.	Journal No.	Ward.	Register No.	NAME.	Age.	Country.	Social Condit'n.	OCCUPATION.	ADDRESS.	RECOMMENDER.	Days in House.	Dismissed.	DISEASE.	RESULT.	REMARKS.

A similar Form is used for Surgical Cases.

Daily Return by Ward Sister of Patients Admitted, Dismissed, or Dead.

N.B.—This form must be filled up and sent to the Superintendent's Office every morning by 9 o'clock.

.... HOSPITAL.

Wards,................................

..............................19

ADMISSIONS.

N.B.—Say here if Accident or Emergency.	Name.	Age.	Ward.
....	....	....	....
....	....	....	....
....	....	....	....

DISMISSIONS.

Name.	Ward.
Dismissions.	
....	....
....	....
....	....
Deaths.	....
....	
....	....

ABSTRACT.

Ward.	Admitted.		Dismissed.		Died.		Remaining.		Empty.	
	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	M.	F.
....	....	....	....	....	....	....	....	....	......	......
....	....	....	....	....	....	....	....	....	......	......
....	....	....	....	....	....	....	....	....	......	......

............................Ward Sister.

5. In addition to these records, an alphabetical index of every patient admitted to the Hospital should be kept up to date and available for reference, giving the patient's name, the number of the ward, and the date of admission and dismissal.

CHAPTER II.

THE WARD UNIT.

THE preceding chapter deals in detail with the Admission Department and the various conditions governing its efficient management ; the Hospital proper next claims attention. By this term is meant that part of the buildings in which the patients are accommodated. The provision made for this purpose should be based upon a definite scheme or plan of *ward units.* Only thus can any uniform system of control be carried out.

Ward Unit.

A ward unit consists of a male ward and a female ward, together with the side rooms and adjuncts necessary for the independent working of these wards. A surgical ward unit, for example, must include an operating theatre, &c., while ward units set apart for special diseases will be modified to meet the requirements of those diseases. In order that the treatment of patients, the teaching of students, and the general management may be satisfactory, a complete ward unit should be assigned to each member of the visiting staff—medical, surgical, or special, as the case may be. Each of those units, so far as the structure of the building is concerned, should be complete in itself, and its constituent parts should all be on the same floor. The ward units in a general Hospital may be multiplied according to the available area of the site, the requirements of the district to be served, and the funds available for upkeep. They should, however, be limited to what can be efficiently supervised by one executive officer, and conveniently managed from a central administrative department.

Medical and surgical ward units, while they have many points in common, differ essentially. We shall deal first with the medical unit.

Medical Ward Unit.

Each visiting physician should have an average of 40, but not more than 44, beds under his charge, 20 to 26 for males and 16 to 18 for females. This accommodation should be divided as follows :—

A large ward containing from 18 to 22 beds for males.

A small side ward with 2 beds for males.

A large ward containing from 16 to 18 beds for females (Plate 7).

A small side ward with one or two beds for females.

There are certain adjuncts which must be in close proximity to every ward ; these include a ward kitchen and a small scullery (Plates 8 and 9), a linen room (Plate 10), a day room for convalescents, a bathroom and a lavatory, a sanitary tower for w.c.'s, and a sanitary tower for bed-pan washer and urine rack. Each of these departments will be described in detail. In addition, the ward unit should include (*a*) a private room (Plate 11) for the visiting physician, where he may keep the records of cases and interview his assistants ; (*b*) a well-lighted room for research work, such as testing of urine, microscopical examinations, &c., fitted with a sink, hot and cold water, and a centrifuge (Plate 12) ; (*c*) a duty room for the sister in charge of the ward unit ; (*d*) lavatory accommodation for the nursing staff apart from that provided for the patients ; (*e*) house physicians' quarters. This last should include sitting-room, bedroom, and bathroom, and should be as near as possible to the wards, but completely cut off from them.

A cross-ventilating passage should separate the wards from each other and from the staircase leading to other ward units. Both the heating and the ventilation of each ward should be separate and distinct.

Design of Ward Unit.

There are several important considerations which govern the design of a ward unit. Each bed should have an equal amount of light and air, and should be placed between two windows. The beds should be so arranged that the nurse in charge may be able to see every bed from any part of the ward. The size of the ward will depend on the number of beds to be placed in it, and on the amount of air-space and

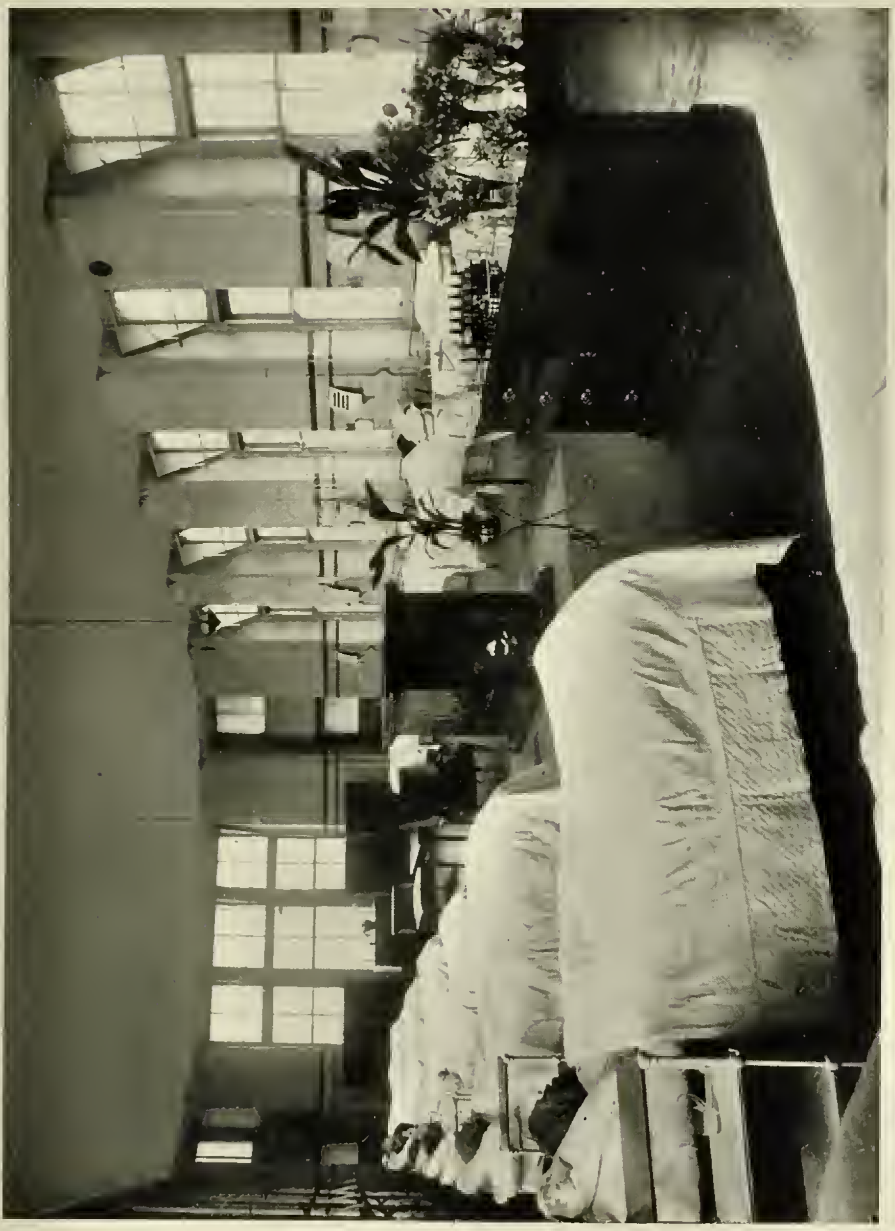


Plate 7—Typical Ward.

floor-space to be allowed for each patient. In a Hospital with a medical school attached the amount of floor-space per bed, and cubic space per patient, must of necessity be greater than are considered sufficient in a Hospital without such a school; the fact that the major part of the clinical instruction is given in the wards renders such increased provision highly desirable in the interests of both students and patients. In a teaching school a minimum of 2000 cubic feet of air-space should be allowed per patient, and a minimum of 150 square feet of floor-space per bed.

Windows.

The windows of the ward should be 4 feet wide, should be placed 3 feet from the floor, and should extend to the ceiling, so that above the windows there will be no unventilated area where foul air may remain. Probably the best form of ward window yet devised is the double-sash window with hopper top, guarded on both sides so that no direct draught strikes down on the patients. The sash frames should open inwards to facilitate cleaning and should be double-glazed, with a space of half-an-inch between the inner and outer panes to prevent radiation and consequent loss of heat. The window-sills should be plate-glass slabs, 14 inches wide, resting on the window ledge behind and on an angle-iron bar in front.

Walls.

The walls should be tiled to a height of 6 feet 6 inches, and treated with cement or adamant plaster above the tiles. They should be rounded on to the roof so that there may be no angular recesses, the walls and ceiling forming one continuous surface. The plastered walls and ceiling, when thoroughly dry, should be treated with three coats of oil paint and two of enamel.

Floors.

The floors should be fire-proof, and covered with a hard wood, such as teak, maple, or pitch-pine. Three-inch boards of red pine, tongued and grooved, laid on concrete and covered with tongued and grooved teak parquetry, make an excellent ward floor. The wood must be well stoved before being laid,

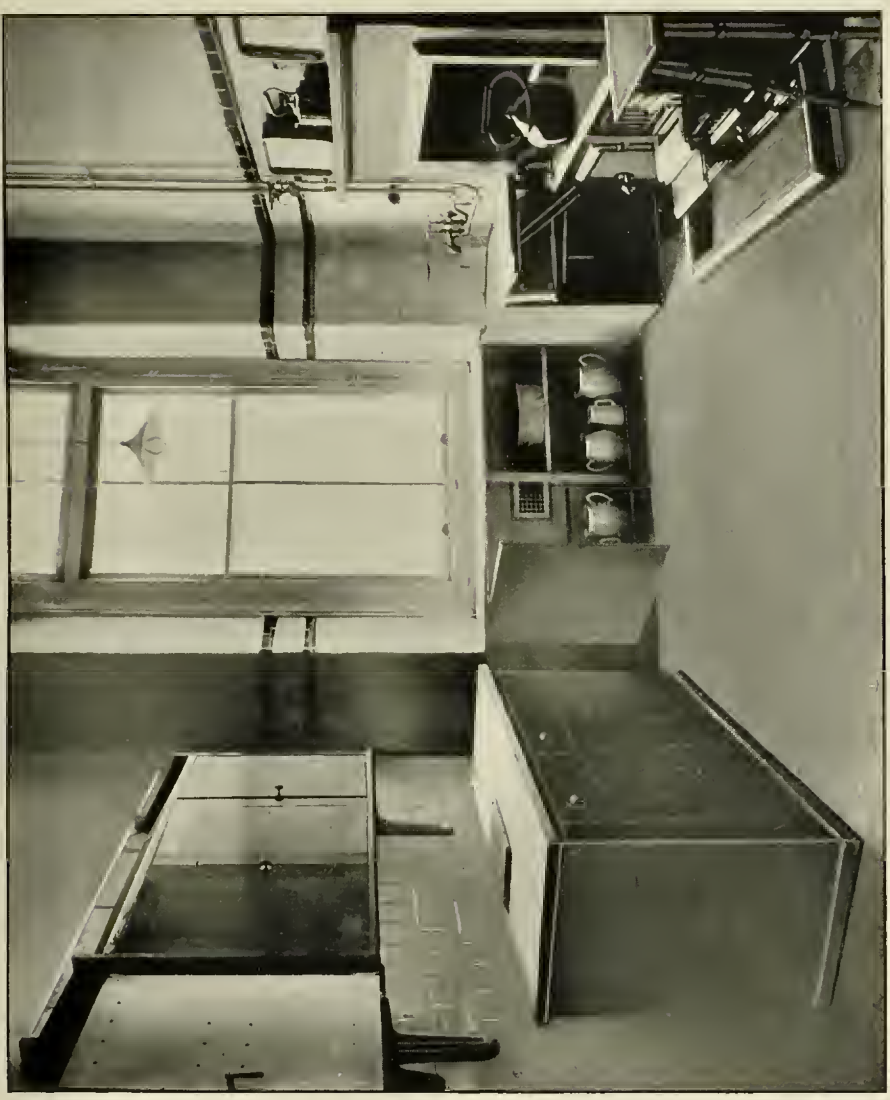


Plate 8—Ward Kitchen.

and afterwards polished with a mixture of beeswax and turpentine. The junction of floor and wall should be a curve and should be formed in terrazzo. This terrazzo should extend 1 foot up the walls to meet the tiles, and 18 inches into the floor area. Terrazzo should also be carried round all stoves and radiators 2 feet at the sides and 4 feet 6 inches in front, thus preventing the possibility of sparks falling on the wooden floor—a point frequently overlooked in hospital construction.

Doors.

All doors should be of teak and should present an absolutely smooth surface without panels or mouldings. Those at the entrance to the ward should be capable of being opened both outwards and inwards, and should be of plain teak, the upper section being fitted with plate glass.

NEW PAVILION OF WESTERN INFIRMARY, GLASGOW.

Wards and Adjuncts.

The accompanying plan (No. 3) of the new pavilion of the Glasgow Western Infirmary affords a comprehensive idea of a complete ward unit. This ward unit, which is contained on one flat, runs north and south. It consists of a male ward with 22 beds and a female ward with 16 beds; a side ward for males with two beds and a side ward for females with one bed. A central corridor joins the two large wards, and this corridor is reached by a central staircase or by two electric automatic lifts placed in the well of the stair. The female ward is on the north side, and at its northern end are two sanitary towers completely separated from the ward by ventilating passages. These passages are protected on each side by louvred doors, which may be opened or closed at will. In the west tower are two w.c.'s, separated from each other by a partition of enamelled brick which extends to the roof. This complete partition is much more satisfactory than the common method of division by a screen 6 or 8 feet high. Each w.c. has two windows, so that, quite independently of the passage which separates them from the ward, both can be ventilated as desired. In the east tower is an apartment for the exclusive use of the nurse, and provision is made here for cleansing bed-pans, storing urines, &c.

Adjoining the ward, on the west side of the main corridor, is a lavatory for patients, and abutting on this is a private lavatory for nurses. Leading from the patients' lavatory is the ward bath-room. The furnishings of lavatories, sinks, w.c.'s, bathrooms, &c., are subsequently described in detail and illustrated. The next apartment is the sister's duty-room, and beyond it is the day-room for the use of patients. Adjoining the ward on the east side of the main corridor is the ward kitchen; the cleaners' room, linen room, and side ward are placed in the order named.

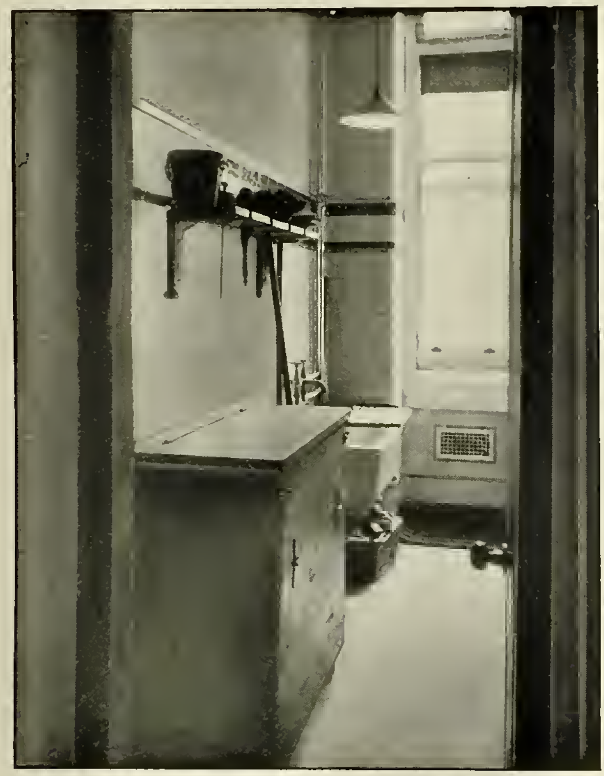


Plate 9—Cleaners' Room adjoining Ward Kitchen.

A through ventilating corridor running east and west cuts off this ward and its adjuncts from the remainder of the ward unit, and a similar short corridor occupies a corresponding position at the end of the male ward and its adjuncts. Between these two cross corridors is the central staircase, and opposite to it are the private quarters of the resident physician. These comprise sitting-room, bedroom, and bathroom.

The male ward, like that for women, has two towers at its southern end. The adjoining apartments are similar to those of the female ward, with the addition of a urine test-room and a room for washing and examining patients. There is also a private room for the visiting physician, entered from the short cut-off corridor.

Furnishings and Appurtenances.

The main principles underlying the construction of a Hospital can, no doubt, be laid down and applied by any skilful architect. But in a modern Hospital there are details of construction of which the need, and the conditions under which the need can be met, are known only as a result of experience in Hospital administration. Hence the administrator must not only state the problem which the architect has to solve, but must co-operate in its solution. In other words, the architect and the practical administrator must be so associated in their labour that the former may find it possible to interpret and put into form the detailed requirements indicated by the latter. It is not to be expected that an

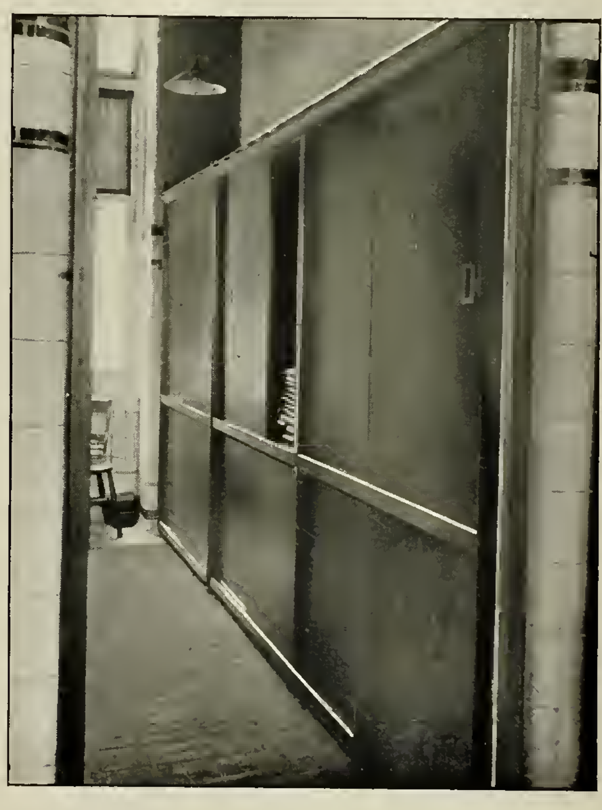


Plate 10—Ward-Linen Room.

architect unfamiliar with the practical working of a Hospital can be conversant with such details; and thus it frequently happens in modern Hospital plans that, while the buildings themselves are on approved lines, the lack of adequate administrative detail negatives much of the benefit which might otherwise be obtained.

Sanitary Towers.

In order to explain this contention, I may quote from a description of sanitary towers, "No urine or other excretions should be retained in vessels but should immediately be discharged by the urinal."

Plate 11—Visiting-Physician's Room in Ward Unit.

Now the fallacious nature of such a statement and its bearing on the fitting-up of a sanitary tower must be at once apparent to those who have practical knowledge of Hospital work; for, in order to make a satisfactory examination of urine in certain types of cases, it is essential that it be kept for 12 or even 24 hours. This involves the provision of suitable storage accommodation, and by arranging the fittings of the sanitary tower as figured in the accompanying illustration, it is possible to retain urine or other excreta for the requisite period without incurring any risk of the odour penetrating to the ward, or causing danger or inconvenience to the inmates or attendants.

This arrangement (Plate 13) consists of a series of galvanised iron racks on which are placed the covered vessels containing the excreta, while in the wall behind are a number of openings to the external air guarded on the outside by louvre frames for ventilation, and in the inside by the iron gratings seen in the figure. By a simple arrangement these louvre frames can be opened and closed at will. Plate 14 illustrates another arrangement (occupying practically the same wall space as shown in Plate 13) for the storage of urine or excreta; but in this case the racks are entirely enclosed by means of sliding iron doors. This might appear the more perfect method, but experience has proved that in practice the open method serves the purpose equally well, and is less costly to construct.

In one sanitary tower the w.c.'s are placed, and, as previously indicated, they are completely separated from each other by means of a brick partition extending to the roof. This tower contains no other fittings of any kind. The windows extend to the ceiling, in order that there may be no space in which foul gases may collect. The corresponding tower at the other corner contains the rack above illustrated, and, in addition, a bed-pan washer (with only a cold water supply) a wash-hand basin for the use of the nurse (with hot and cold water), and a radiator for heating purposes. Above this radiator is fixed a galvanised iron grill where bed-pans may be slightly heated before being used.

There is also in this apartment a simple arrangement for the temporary storage of soiled linen (Plates 15, 16, and 17). This consists of a galvanised iron ring about 15 inches in diameter, which is bolted to the wall and supports the clothes bag. The bag is attached to the ring by a leather strap and secured by a clip. Soiled linen may be dropped into this bag and removed to the laundry without further handling by the nurse, provided she has duly noted in her laundry book each article placed therein. When the apparatus is not in use it is unhooked and lies flat against the wall.

Leading from the cut-off passage between this tower and the ward is a fire-escape stair. Fire-escape stairs should be

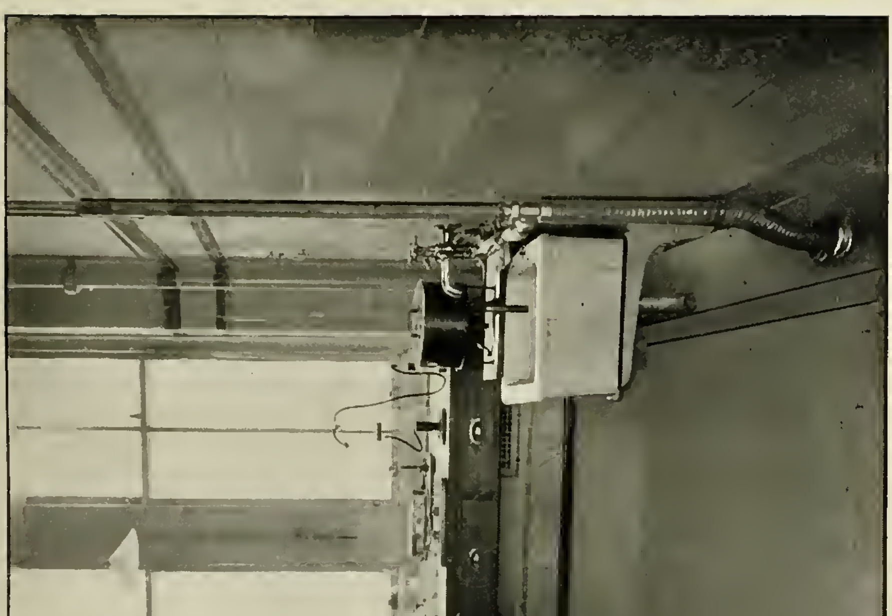


Plate 12—Laboratory in Ward Unit.

so arranged that they will not cross in front of any windows. There are two reasons for this: (a) that they will not interfere with the lighting and ventilation of any part of the building; and (b) that in the event of fire they may not be rendered valueless by flames escaping from the windows. The fire-escape stair should be not less than four feet wide and have frequent landings, so that a patient might be removed on a stretcher—a thing which is practically impossible with a circular stair.

In the ward unit under consideration the door, 3 feet 6 inches wide, leading to the escape stair is kept locked, and, except in case of fire, can be opened only by a master key. The ordinary key is placed in an enclosure in the centre of the door, glazed on the outside with red glass, and on the inside with clear glass. The inner glass bears the notice in bold letters, "Key of door.—Glass to be broken in case of fire." The key can be seen lying within. This ensures that it is always available, and, at the same time, effectually prevents the door from being used for other than its legitimate purpose (Plate 18).

With regard to the ward itself, reference has already been made to the windows, floors, and walls. It may be mentioned that the furnishings are of the simplest possible type. The beds have been designed specially for the building. The couches, tables, cabinet, and reclining chairs are all on solid leather castors. The draught screens (Plates 19, 20, and 21) are also on wheels, and are simple frames covered with a washable material, turkey red or white cotton being found very efficient, and imparting a bright appearance to the ward. The covers are removable, and the frames are so light that they can easily be moved about by a nurse. The heating and the ventilation of the ward are described in connection with the general heating and ventilation of the building.

Ward Kitchen.

Plate 8 illustrates the ward kitchen. This apartment is 13 feet long by 9 feet broad, and its fittings merit careful study. The window is of practically the same dimensions as the windows of the ward. The bossing is utilised as a cupboard, and the cupboard has a ventilating opening, guarded externally by louvres and internally by an iron frame covered with gauze. As shown in the illustration, the doors of the cupboard being open, the milk, butter, &c., for ward use are stored here, where they are protected from dust and from the heat of the kitchen. In the right-hand corner, next the window, is the sink, with a teak drip-board attached. The sink is supplied with hot and cold water through a junction tap, and check valves are placed on both hot and cold water pipes, so that, if necessary, repairs may be carried out on the taps without emptying the pipes in other portions of the building. On the same side is a small coal range or gas stove. On the opposite wall is a dresser mounted on wheels. The wheels enable it to be moved from the wall for the purpose of cleaning. Above the dresser are three cupboards with sloping tops, fixed to the wall by means of galvanised iron brackets. One of these cupboards is of iron, and is used for

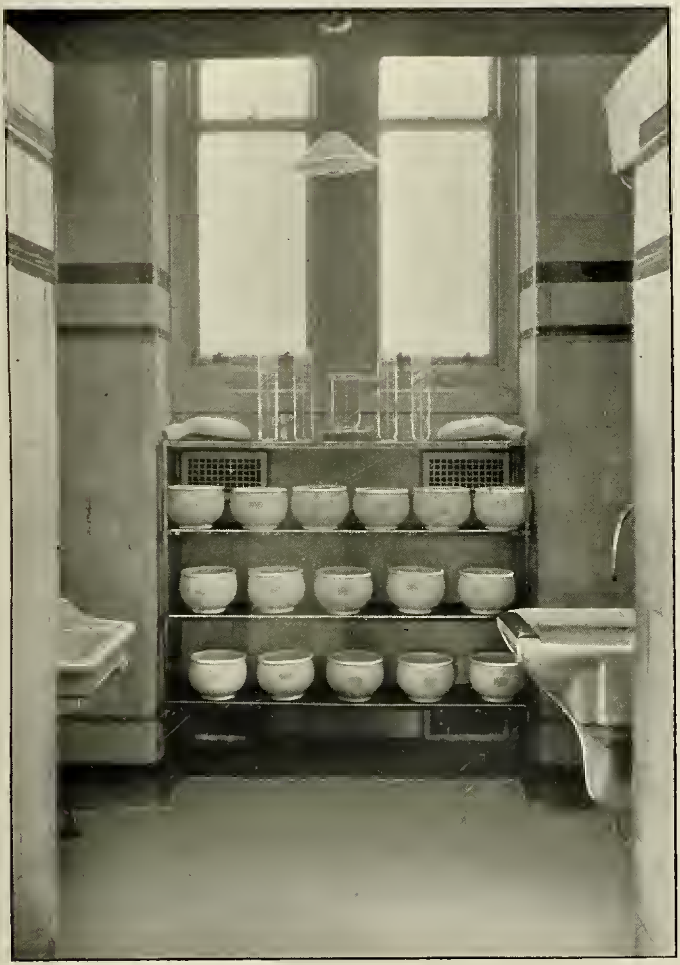


Plate 13—Bed-Pan and Urine Rack.

the storage of bread, the doors and sides being perforated for ventilation. The second is fitted with racks and pegs for crockery. The third is for the private use of the nurse.

It may be noted that there is no inspection window from the kitchen into the ward. This is not necessary, nor is it desirable in a ward with acute cases, as only a limited number of beds could be within view. In a well-administered Hospital the inspection window is not necessary, and it has the structural disadvantage of breaking the wall-surface and adding ledges where dust may collect.

Cleaners' Scullery.

The next illustration (Plate 9) is that of the cleaners' scullery, 12 feet long by 5 feet broad. This scullery adjoins the ward kitchen, and contains a coal-box on wheels, a sink, similar to that in the ward kitchen, with hot and cold water tap placed sufficiently high to let a bucket be filled with ease, a rack for brushes, and a basket for dusters, &c. Everything is exposed, and there are no corners in which articles might be hidden, or in which dirt might collect.

Linen Room.

Plate 10 illustrates the room for the storage of the ward linen. This room, which measures 12 feet by 6 feet 6 inches, is fitted with presses having sparred shelves, and ventilated top and bottom. The doors are made to slide on metal rollers in metal grooves. It is an advantage to have all the main heating pipes passing through this room, as this ensures everything being kept thoroughly dry, and the pipes are easily got at.

Lavatory and Bathroom.

The patients' lavatory is 13 feet long by 5 feet 10 inches broad. The bathroom adjoins it, and built out from it is a private lavatory for nurses, which measures 4 feet by 3 feet 6 inches. The patients' lavatory contains two basins with hot and cold water supply. On the opposite wall is a portable bath with an arrangement for filling and emptying. This bath is on four wheels, and can be removed to a bedside when necessary. Over the portable bath is placed a metal rail 5 feet from the floor, and projecting 1 foot from the wall, where macintosh sheeting and jaconet may be hung

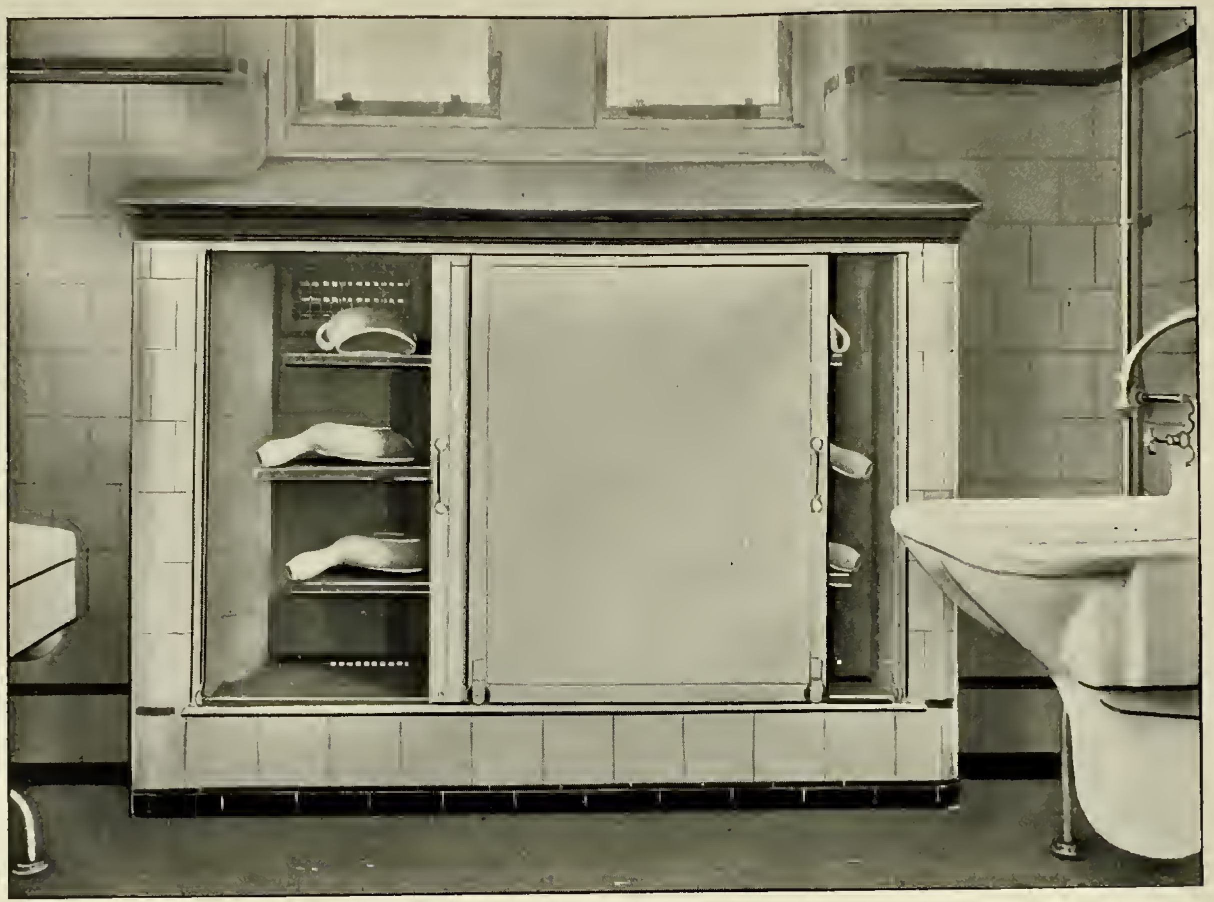


Plate 14—Bed-Pan and Urine Rack (alternative type).

up to dry. Adjoining the lavatory is the patients' bathroom. The bathroom, which is 9 feet 6 inches long by 6 feet 10 inches broad, is placed at the entrance to the ward, so that a patient may be bathed before admission without requiring to pass through the ward. An objection sometimes raised to placing the bathroom in this position is that it occupies too much space, and requires additional drain pipes. By adopting the swivel type of bath, which has been specially designed for this ward unit, a large bathroom is not required. It is necessary that the nurse or attendant should be able to get to either side of a Hospital bath, and by means of the swivel arrangement this can be accomplished in comparatively little space.

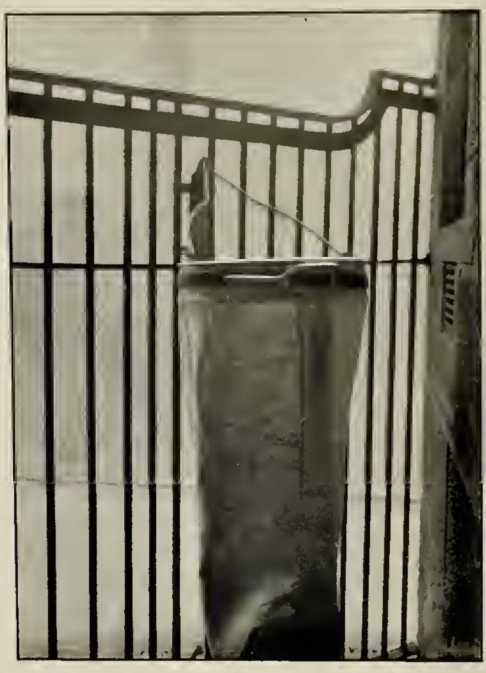


Plate 15—Soiled-Linen Bag

(Observe holder, which can be released or tightened and secured by simply turning the handle).

The bath is supplied with hot and cold water through a special valve fixed on the wall and worked by a detachable key. This key can be removed by the nurse, so that patients cannot waste water by leaving it turned on. The valve is arranged so that cold, hot, or tepid water can be had as required, but the tap is so constructed that the cold water is turned on first, thus preventing any possibility of scalding the patient. The drains for the bathroom and lavatory are

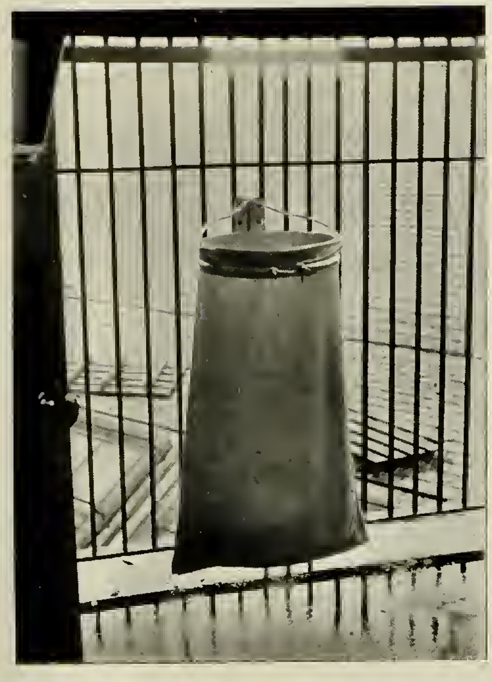


Plate 16—Alternative form of Soiled-Linen Bag.

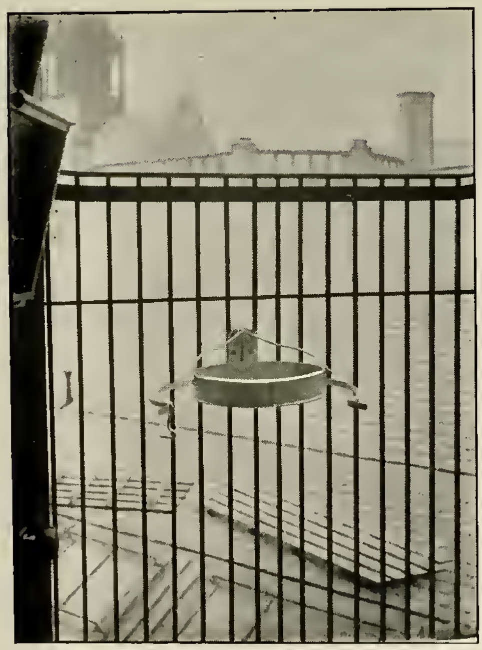


Plate 17—Clip for alternative Form of Soiled-Linen Bag.

disconnected from all sewage pipes, and are exposed on the outside wall.

Ward Sister's Duty Room.

The ward sister's duty room is 12 feet long by 8 feet 3 inches broad. Here the sister keeps her books and interviews her nurses. The furnishings are simple, consisting of a writing table, with a row of drawers, a corner cupboard, an easy chair, and two small chairs.

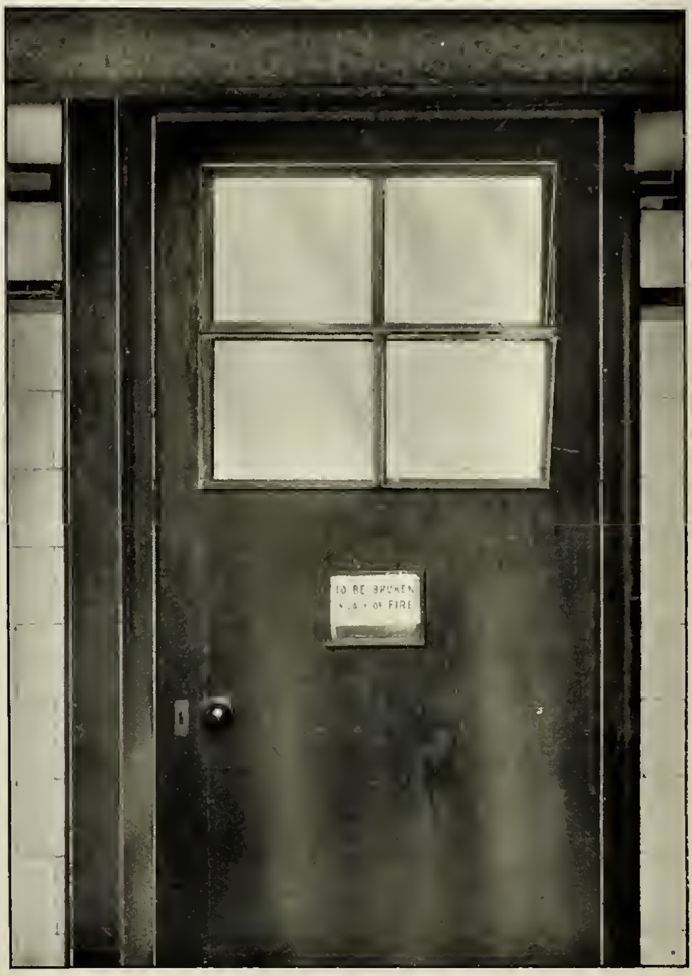


Plate 18—Fire-Escape Door.

Visiting Physician's Room (Plate 11).

The Visiting Physician's private room is used for interviews with his assistants, and here also the Visiting Physician keeps the charts and records of his cases and any instruments, such as microscopes, required for teaching purposes.

Laboratory.

Plate 12 illustrates the laboratory or test room. This room should have a large window without any mullion, so that there will be no obstruction to light. It should be fitted with a sink, with hot and cold water, and a centrifuge worked by electricity or by water pressure from the cold-water pipe. On the wall opposite the sink should be fitted cupboards, with shelves for test and stock bottles, and drawers of various sizes for the storage of diagrams, charts, etc.

Day Room.

In order that convalescents may be more easily supervised, and that no light or air may be cut off from the corridor, the day room is divided from the corridor simply by a plain wooden partition 4 feet 6 inches high at the centre and 7 feet high at the end. Here the convalescents take their meals, and can amuse themselves without disturbing the patients in the ward.

Examination Room.

The washing and examination room is used for the examination of patients who, having been in the Hospital, return to be seen by the Visiting Physician. It may also be used for the thorough washing of newly-received patients who are too ill to be attended to in the general bathing department. A porcelain slab (Plates 1 and 60) turning on a pivot, similar to the arrangement for the movable bath, is fixed in one corner of the room and a swivel bath in the other. The room is specially heated, so that there is no danger of a patient catching cold. The provision of this room does away with the objectionable practice of taking return-patients into the ward and placing them in beds for purposes of examination without being properly bathed; it also allows the nurse to get the patient thoroughly cleansed before admission. There is no doubt that vermin, if not infection, is sometimes introduced into a ward when return-cases are admitted for examination, and the provision of a room such as is here described obviates this possibility.

CHAPTER III.

THE SURGICAL WARD UNIT.

(Plan No. 4.)

THE scheme of ward units is a departure from the old system of Hospital administration, and is, undoubtedly, more expensive in construction. This is exemplified particularly in connection with the surgical unit. Formerly, one, or at most two, operating theatres were considered sufficient for any Hospital, and the members of the surgical staff had the use of the theatre in turn. Although, on the ground of economy, much can be said in favour of this arrangement, it has obvious disadvantages. Patients are frequently kept waiting for operations when the theatre is not available; and, where the clinical instruction of large numbers of students is involved, the lack of accommodation seriously hampers efficient teaching. But the main disadvantage arises from the fact that, in the desire to accommodate these students, the buildings are so constructed and arranged that it is impossible to ensure thorough cleanliness. Moreover, the developments of aseptic surgery and the increased number of operations now performed, render the provision of additional theatres an absolute necessity. Hence the justification for including an operating theatre in each surgical ward unit. The surgical ward unit differs from the medical ward unit, then, in respect that it contains in addition an operating theatre, with anæsthetic room, rooms for sterilising surgical dressings and storing splints, and, where possible, a small male ward holding from 12 to 16 beds for the treatment of accidents. By the provision of this accident ward, patients in the general ward who may have undergone serious operations are not liable to be disturbed by the admission of accident cases at any hour of night or day. In a Hospital which is not a teaching school this additional ward is not essential; in this case it would probably be found more convenient and more economical to set aside a separate unit of surgical wards for the treatment of accident cases. The accident ward, although smaller than the general male ward, does not differ from it in any essential detail. It should have the same sanitary annexes, bathroom and lavatory accommodation, ward kitchen, scullery, linen room and day room for convalescents. The sister's room, washing and examination room, test room, visiting surgeon's room, and resident's quarters, are essential in every unit.

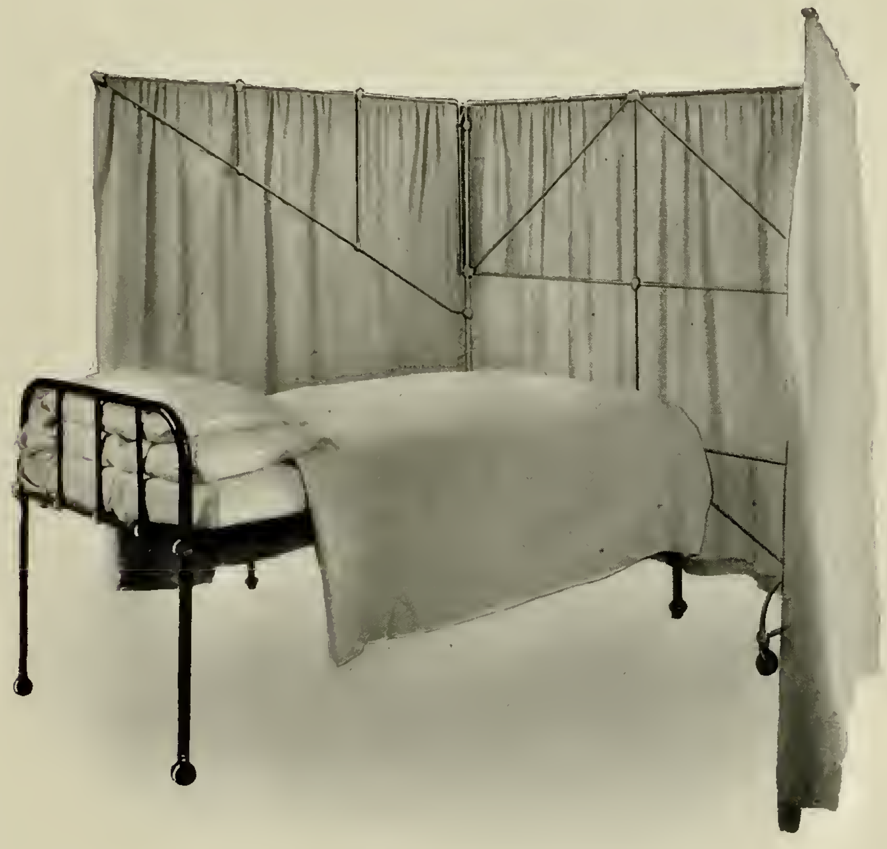


Plate 19—Portable Screen (in position).

Operating Theatre (Plates 22, 23, and 24).

The surgical ward unit should be so placed that the operating theatre will have a north aspect and roof light as well as windows. The accompanying plan (4) shows such a surgical ward unit.

The main wards, as in the medical unit, run north and south; the small ward for accidents is to the west, and on the east is a corridor communicating with the other parts of the

Hospital. Leading from this corridor on the north is the operating theatre with its various rooms; on the south a lecture room is shown, which may be used in connection with either the surgical unit on the one side, or the medical unit on the other.

Within recent years, both in this country and abroad, large sums of money have been spent on the erection of operating theatres. Every up-to-date Hospital, irrespective of its size, has an operating theatre fully equipped with all the latest appliances, although for days, or even weeks at a time, it may not be in use, and the capital sum expended may be out of proportion to the requirements. In some Hospitals, theatres have been built so elaborate that they defeat what should be a main object in their construction, namely, the possibility of having thorough cleanliness in every corner. In designing an operating theatre the first point to determine is whether provision is or is not to be made for

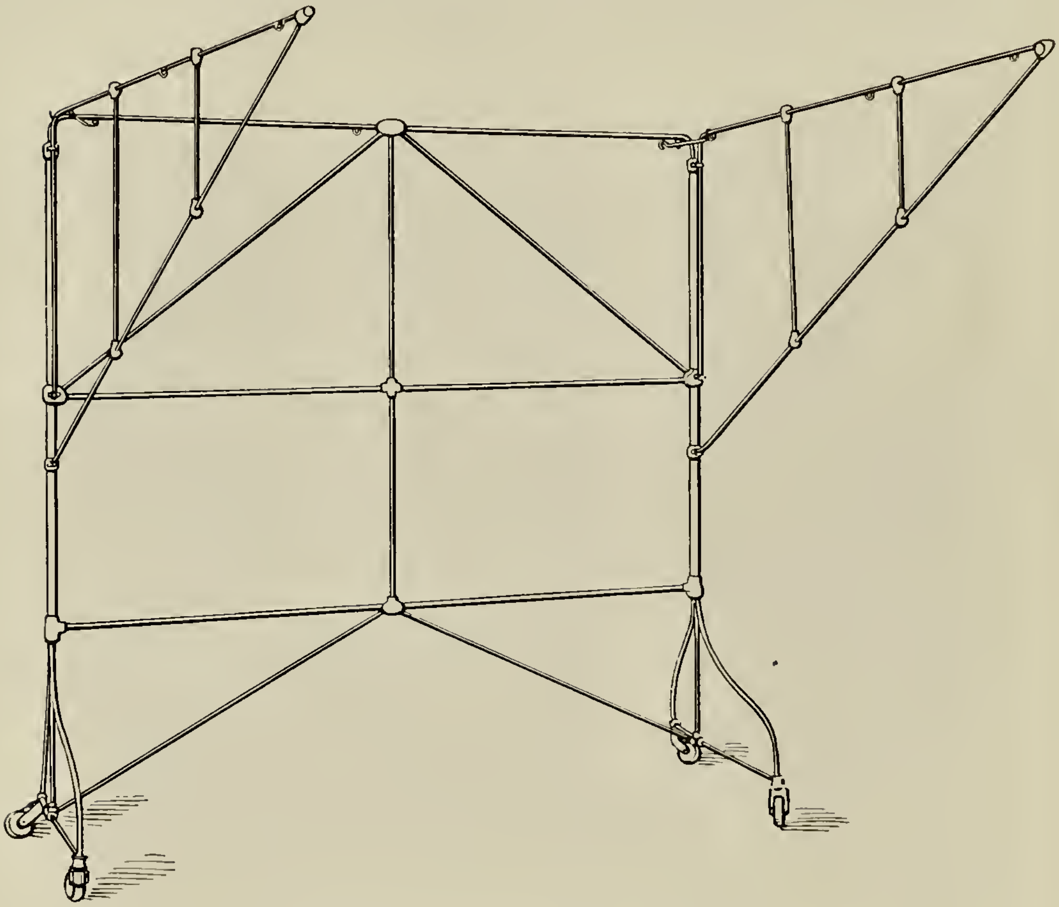


Plate 20—Portable Screen (Frame).

students, and, if for students, for what number. No matter how the space for students is arranged, only a limited number can have a satisfactory view of an operation. In designing an aseptic theatre, therefore, the accommodation for students should be limited to 50 as a maximum. In the interest of patients as well as of students no class should exceed this number, and, if possible, should be limited to 35. The old type of operating theatre provided for two or three hundred students, had a wooden floor and fixed benches, and no doubt served many useful purposes. But for modern surgical work such a theatre is quite unsuitable. The modern operating theatre is much reduced in size, and is so constructed that it can be thoroughly cleansed from floor to ceiling.

Plate 21—Portable Screen (folded).

Students.

The provision for the accommodation of students in an operating theatre is a very difficult problem. In the attempt

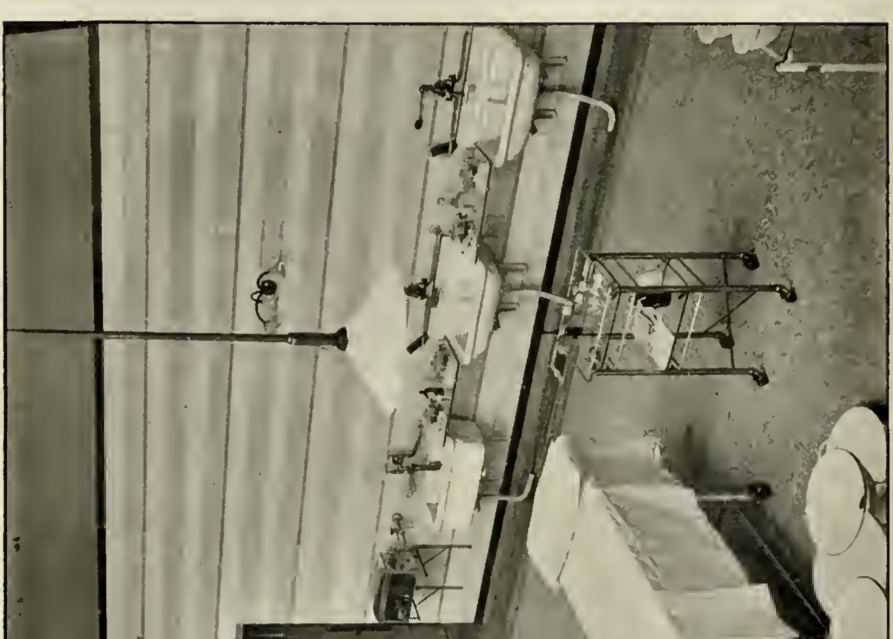


Plate 22—Area of Operating Theatre.

Western Infirmary, Glasgow.

to keep the area of the theatre aseptic, where the patient, the surgeon, and his assistants and nurses are at work, the student has in many instances been put in such a position that it is with difficulty that he can see any detail. Mirrors placed at an angle over the operating table have been tried, in order that students who occupy back benches might obtain a better view. It is difficult enough, however, for a student to follow the details of an operation without having to calculate that what he sees in the mirror is reversed, apart from the danger of hanging so weighty a body from the ceiling over the patient ; as a result, this arrangement (which, moreover, collects dust and cannot be thoroughly cleaned) has found but little favour. If we adopt the view that provision should be made for not more than 50 students, the question then arises, how may that number be most advantageously placed ? The plan and section illustrated show two rows of seats under the vertical light, and a gallery on each side, also with two rows. These latter are sufficiently high to permit of an uninterrupted view, and the students under the window have also the advantage of a direct view, without obstructing the light. Each student has a lifting seat of simple construction.

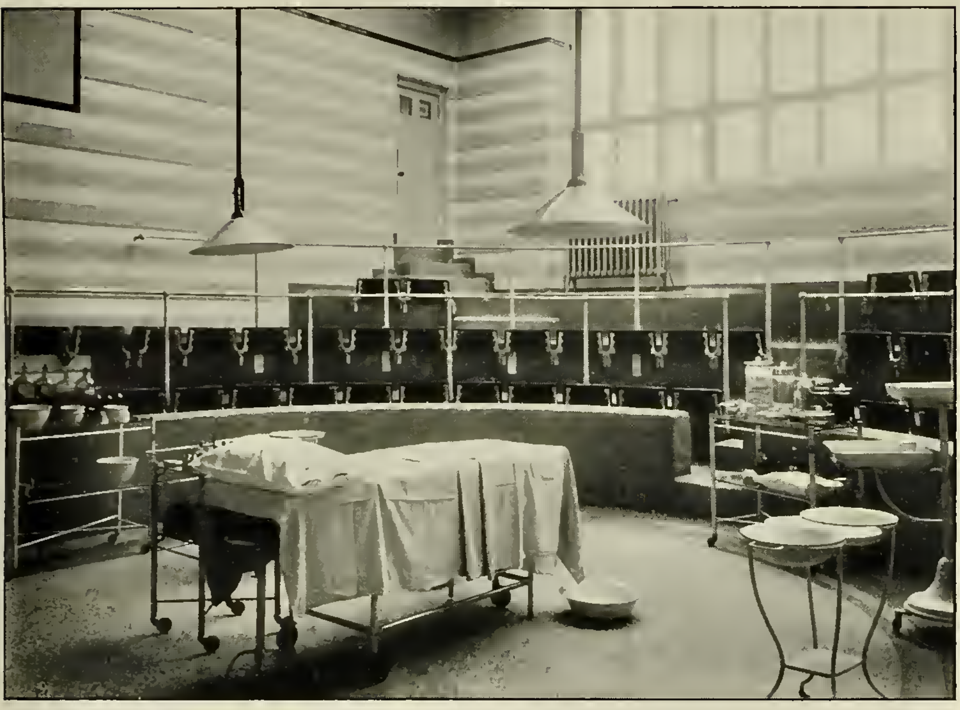


Plate 23—Gallery of Operating Theatre

(Note Students' Entrance on left).

In the attempt to secure a really aseptic theatre, experiments have been made with nearly every variety of material. In some Continental and American Hospitals large glass slabs have been used in the construction of both floors and walls, but experience has proved that glass is quite unsuitable. When the slabs are placed close enough to prevent dust collecting between the joints, the glass is apt to crack with variations of temperature. Glass tiles are open to the same objection. Marble slabs have been adopted both at home and abroad ; but probably the best material is—for walls, a highly-glazed fireclay tile ; for the roof, a hard cement or adamant plaster, well polished and coated with enamel paint ; and, for the floors, marble terrazzo well laid on concrete, the concrete being allowed to solidify before the terrazzo is put on. If the terrazzo be laid before the concrete has had time to thoroughly set, and is exposed to changes of temperature, cracks are apt to occur, which may not be visible for some time. The floor of the area should have a slight incline and slope towards a gutter formed in the terrazzo, into which all the basins discharge and the waste water is drained away. This gutter is fitted with a special trap, which can easily be inspected and cleaned. Fig. 2 shows the arena of such an operating theatre. The walls are tiled, and there are no pipes or projections to be seen. The pipes are all exposed on the wall of the sterilising room behind the theatre, and come straight through the wall to the various fittings, thus reducing the amount of surface in the theatre on which dust might collect.

Lighting.

The artificial lighting requires careful consideration. No light should be fixed immediately above the operating table. Two groups of incandescent lamps with large reflectors should be placed on each side of the table. Each of these fittings should be provided with a separate fuse, in order to avoid the possibility of both lights going out at the same time. They should be arranged to raise and lower, and the reflectors should be so constructed that they can be fixed at any angle.

In some operating theatres unnecessary expense has been incurred in attempting to thin the window frames, in order to avoid shadows being cast on the table. In these

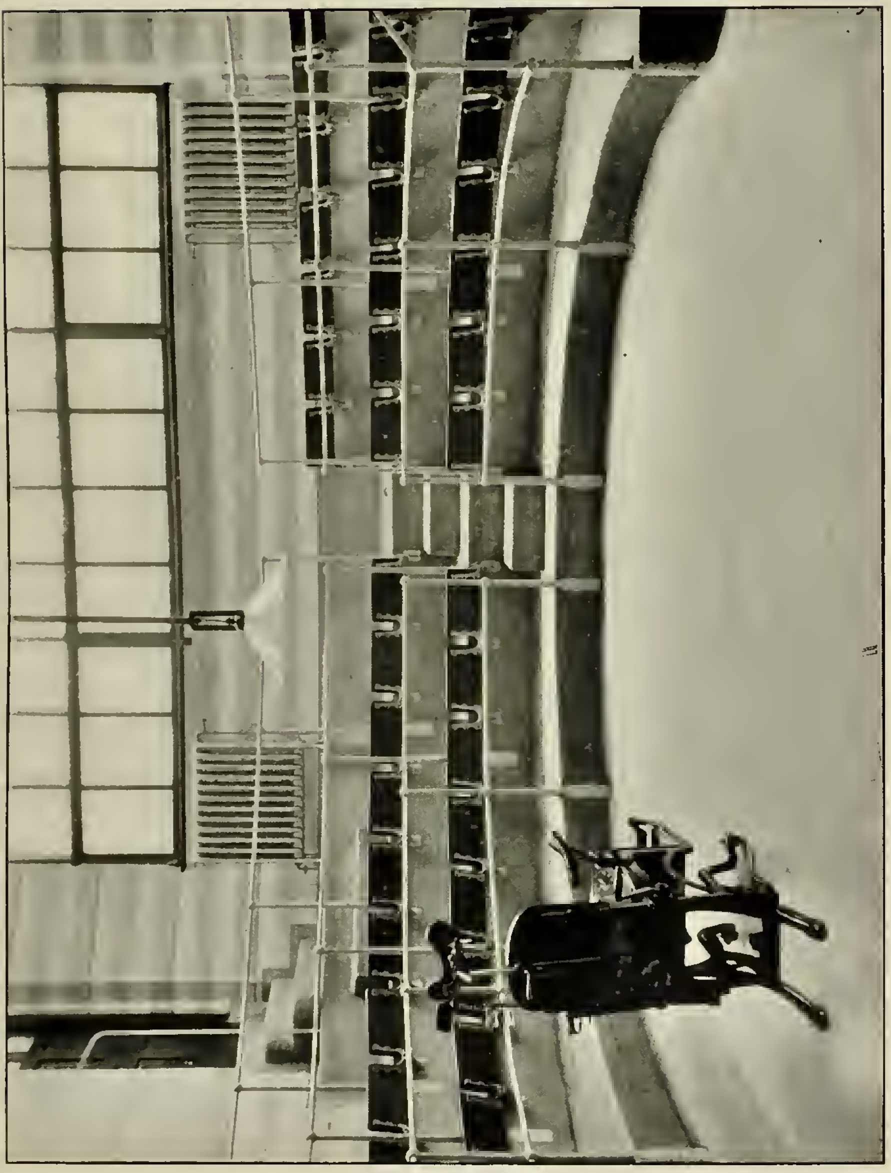


Plate 24—Gallery of Throat and Nose Operating Theatre

(Observe Students' Door in left-hand corner).

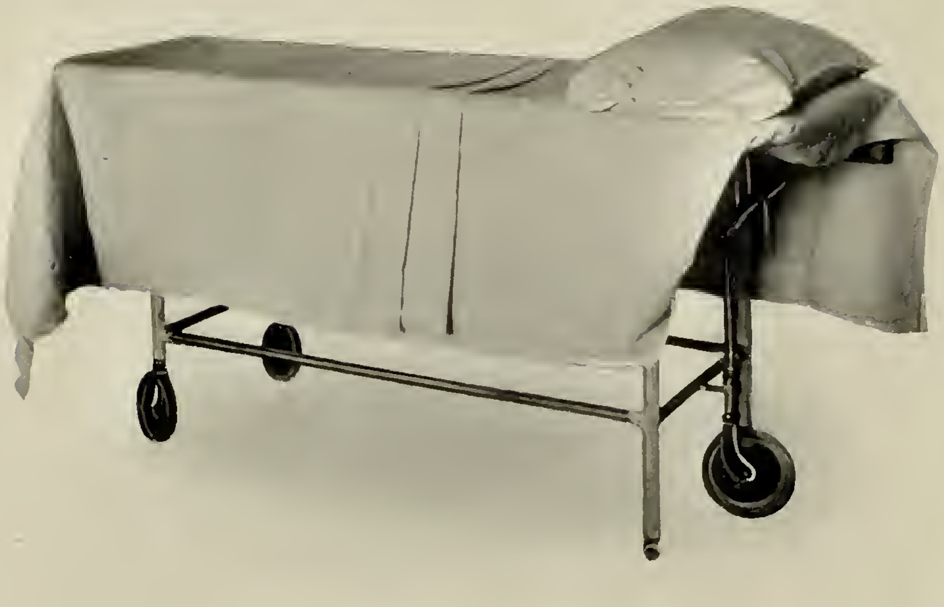


Plate 25—Ambulance Trolley.

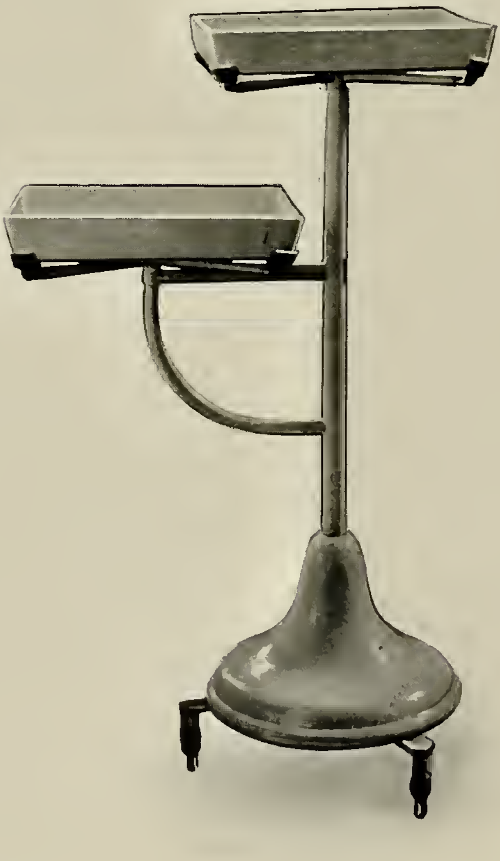


Plate 26—Mackintosh Stand for Instrument Trays.

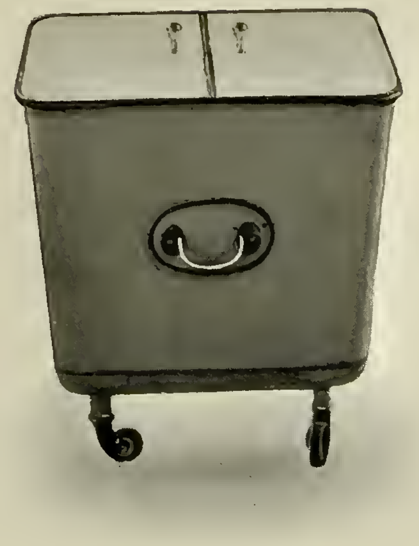


Plate 27—Receptacle for Soiled Dressings.

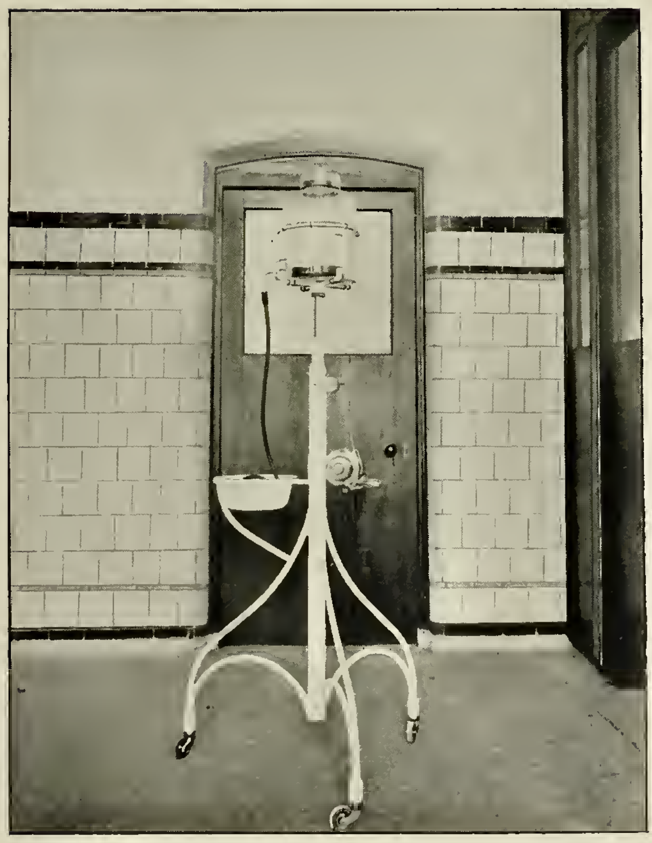


Plate 28—Irrigator.

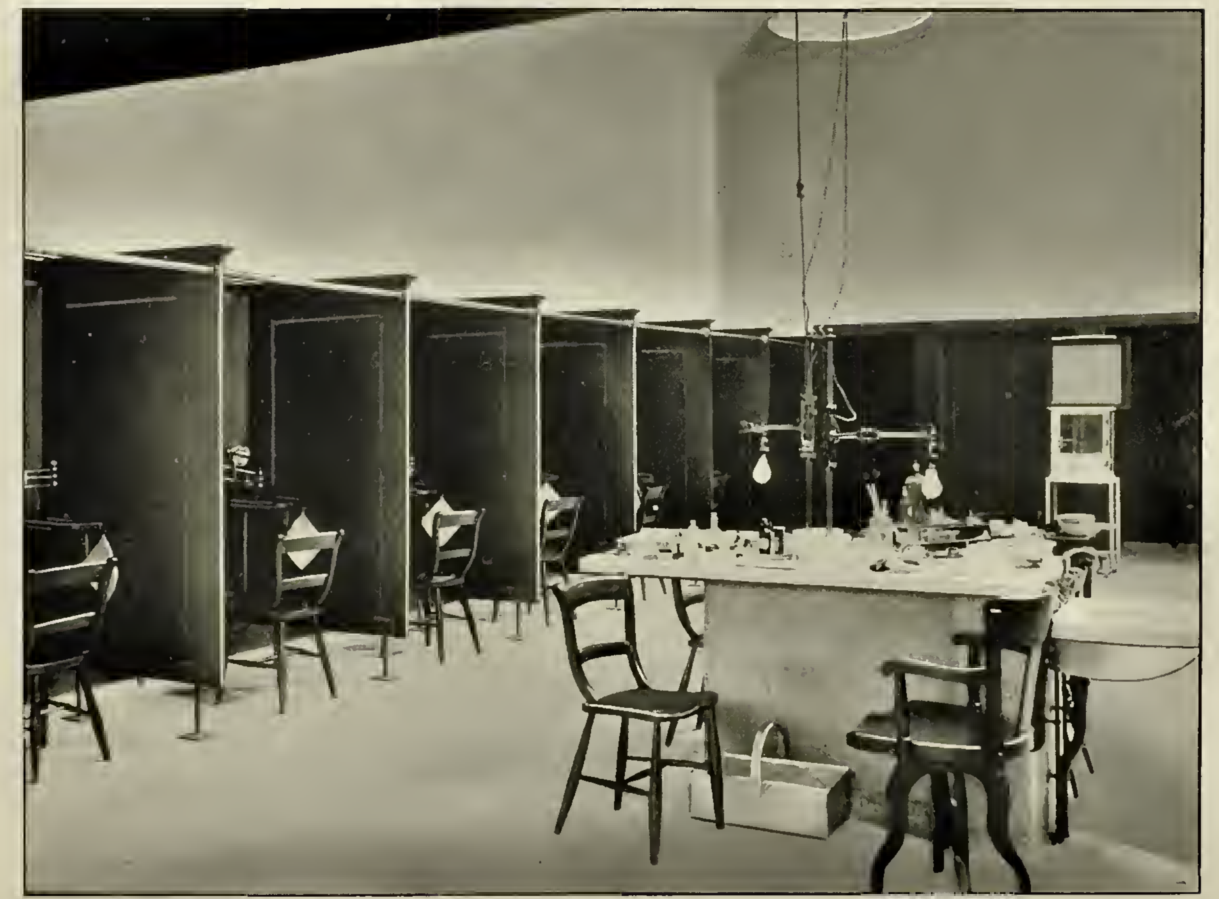


Plate 29—Section of Throat and Ear Examination Room.

Western Infirmary, Glasgow.

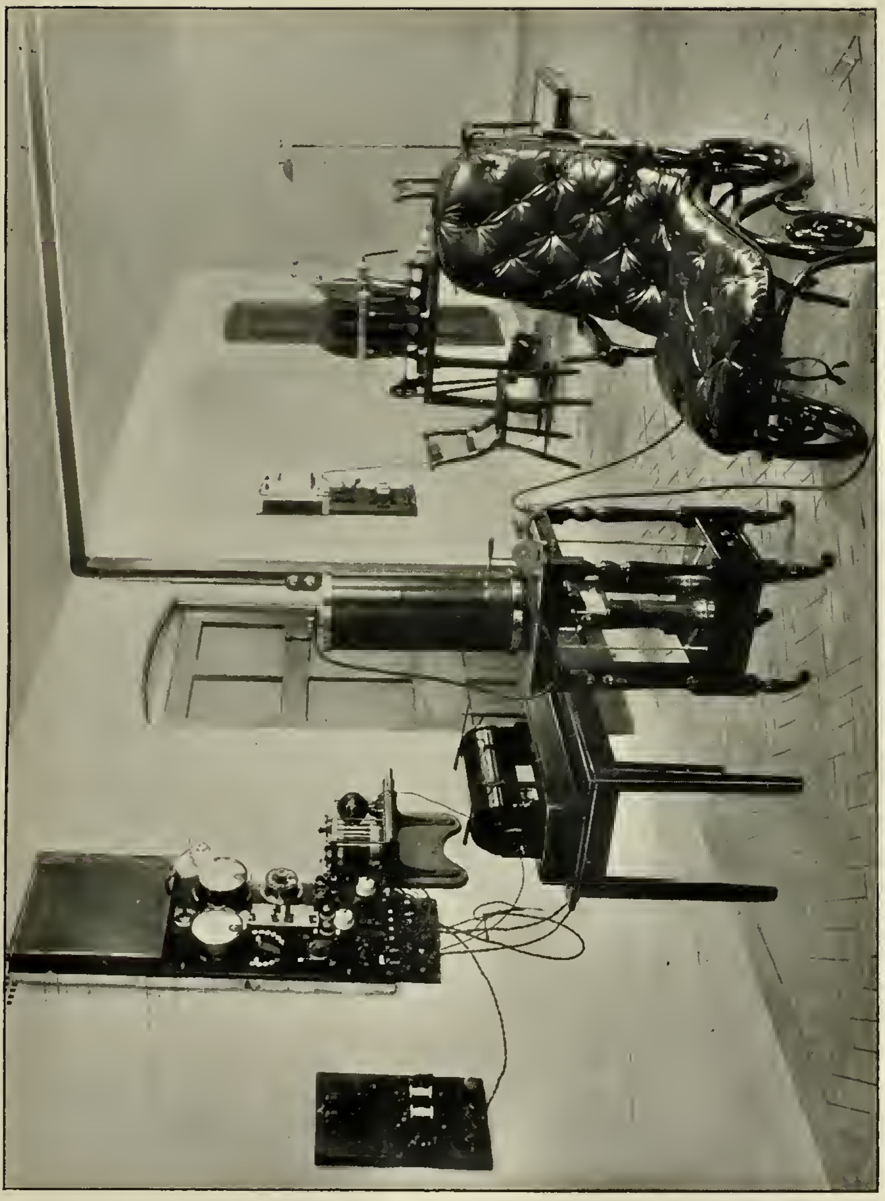


Plate 30—Electrical Room for High-Frequency and Static Treatment.

Western Infirmary, Glasgow.

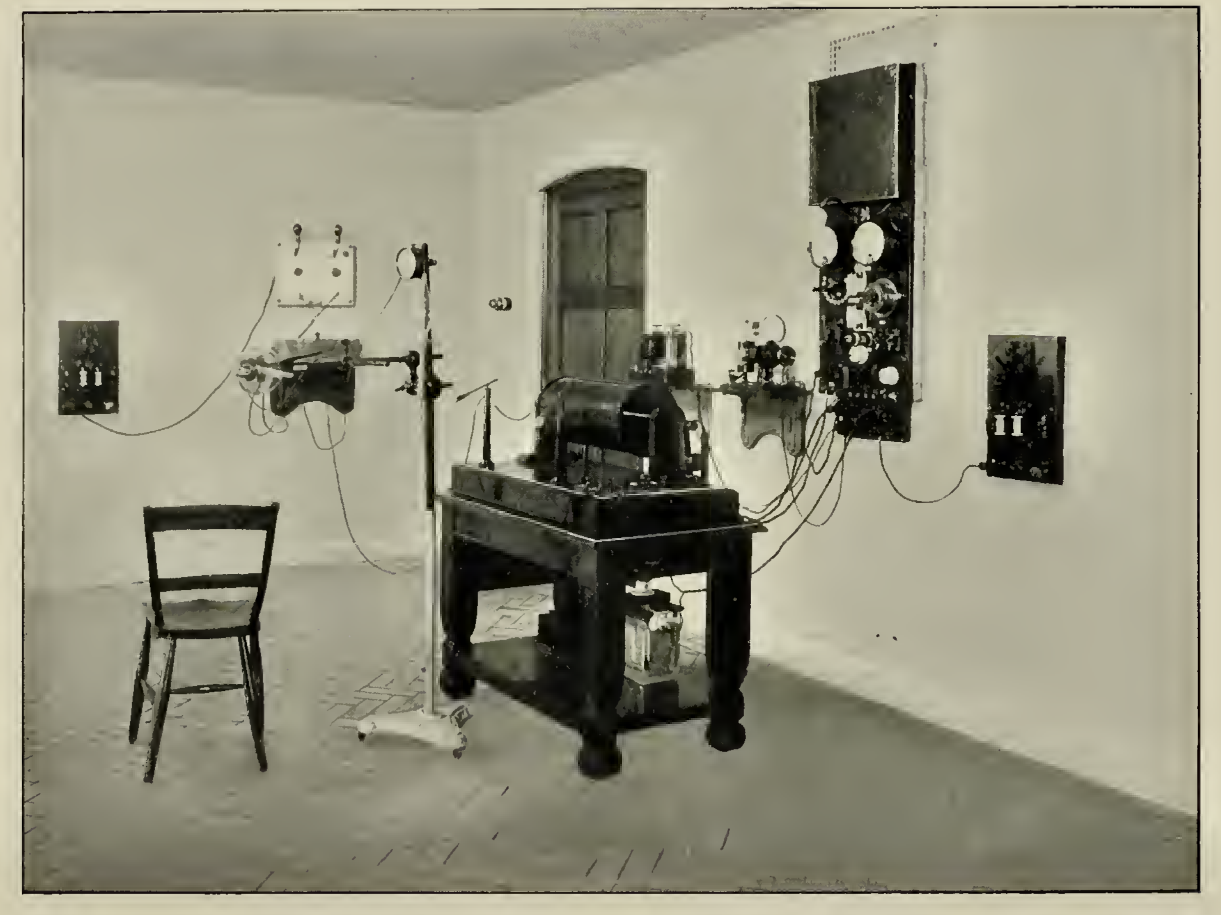


Plate 31—Room for Therapeutic X-Ray Treatment.

Western Infirmary, Glasgow.

windows the frames are made of iron. Wooden frames are equally suitable and much less costly, and, where the building has a northern exposure, there is no risk of shadow. The windows and doors should fit closely without projections or ledges, in order that no crevices may be left where dust can lodge. In some cases the doors are made of iron, but a hard wooden door with a plain, polished surface, having no panels or mouldings, serves the same purpose. The furnishings should be of the simplest type, to prevent the least possibility of their collecting dust, and, if movable, they should be on ball-bearing castors.

Operating Tables.

There is no end to the variety of operating tables in the market, and their cost varies from £10 to £100. The simpler the table, the easier it is to keep it clean. An excellent table, meeting all the requirements of modern surgery, can be purchased for about £15. It is an advantage to have the ambulance trolley of similar dimensions to the operating table. Plate 25 shows such a trolley. By means of the lever action it is made a fixture resting on two legs, and can be used as a table in emergency, or the third wheel can be put into action, thereby enabling it to be used as a trolley. Plate 26 shows a simple, but most useful, stand for instrument trays; the one tray contains sterilised instruments, and the other instruments that have been used. Plate 27 shows a receiver for soiled dressings with a cover, avoiding the exposure of blood-stained dressings when they are being removed to the destructor. Plate 28 shows an irrigator stand on ball-bearing castors. There is a lever with a check action at the side. By means of this lever the height of the vessel may be raised by 3 or 4 feet, and the check action prevents it from slipping back suddenly and getting smashed.

Adjuncts to Operating Theatre.

Adjoining the operating theatre on one side are the anæsthetic room and the robing room for the surgeon and his assistants; on the other side are the sterilising and surgical dressings room. The doors to these rooms are placed under the side galleries. None of the rooms open directly to the main corridor, and the risk of dust blowing into the theatre or its annexes is thus obviated. The students enter the galleries from stone stairs, and have no direct communication with the area of the theatre. Those under the window enter through the galleries, and are cut off from the operating area by a terrazzo wall 3 feet 6 inches in height.

The Lecture Room.

If the lecture room is not fitted with benches and fixed tables, it can be utilised as a general class-room for microscopical demonstrations or other purposes. Arrangements should be made whereby the lecturer may be able to give a lantern demonstration and show stereoscopic photographs. The room should therefore be fitted with dark blinds, in order that it may be readily darkened. Those blinds should have a spring action, and roll up into boxes with close-fitting lids, so that when not in use they are not exposed to dust. In addition, a heavy electric wire sufficient to carry 20 amperes of current must be led to the room, and a plug and switch fixed in a suitable position. A lantern screen should also be provided.

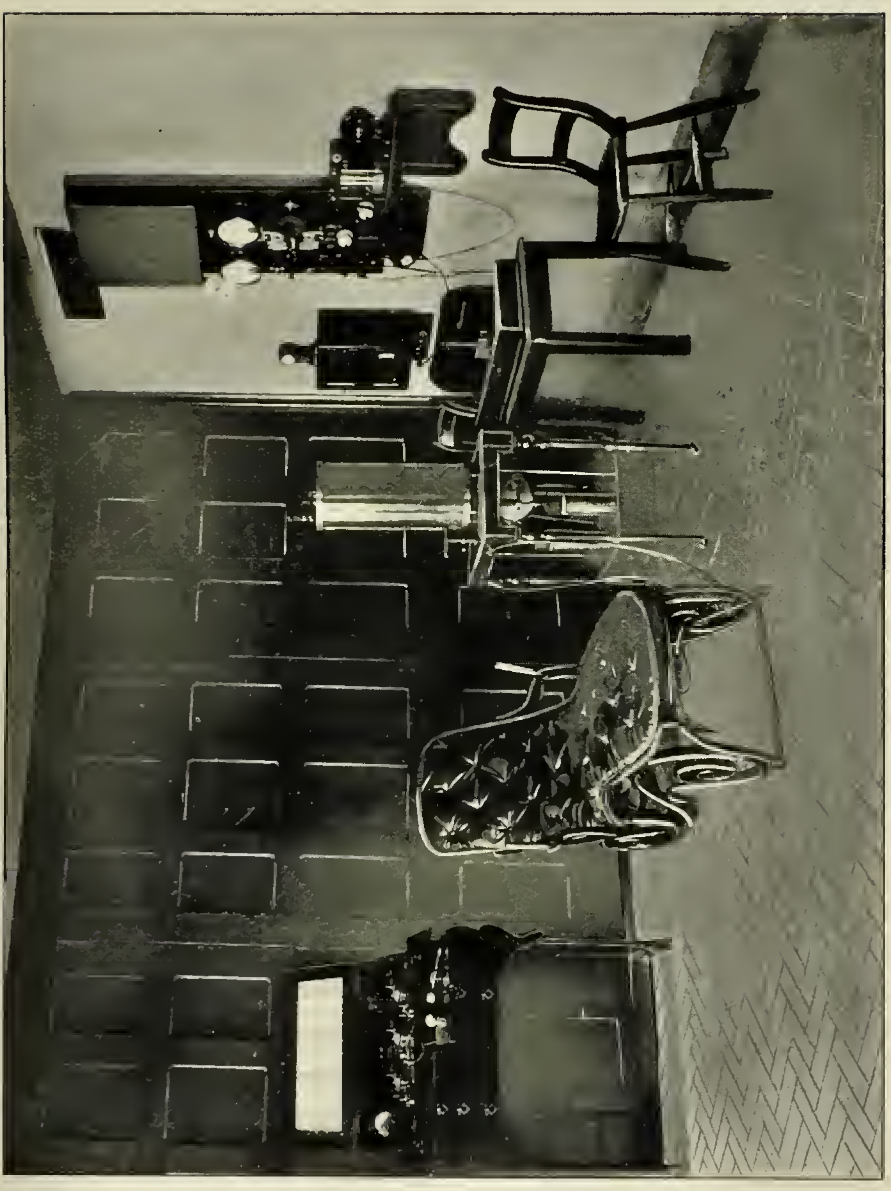


Plate 32—Electrical Room for High-Frequency Treatment only.

Western Infirmary, Glasgow.

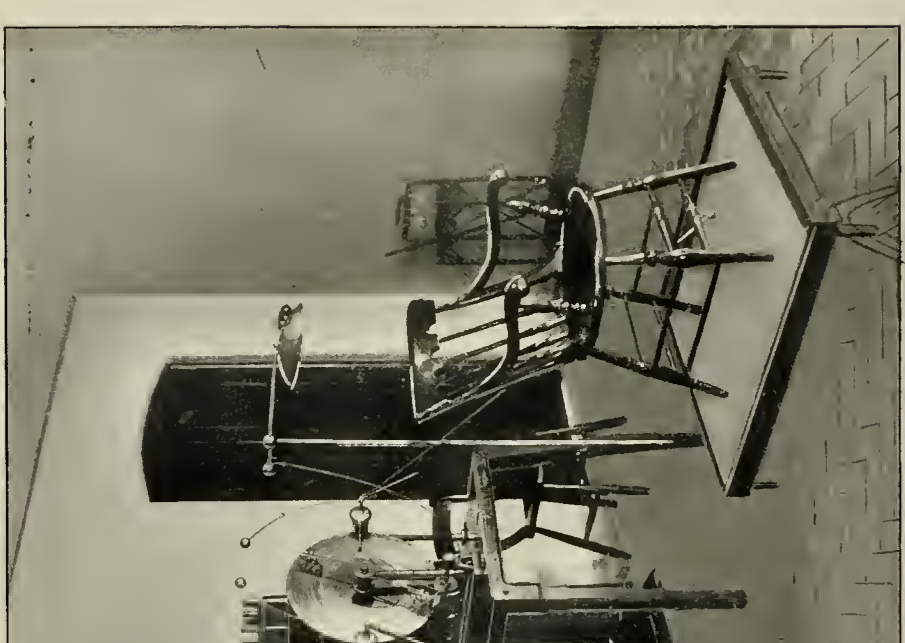


Plate 33—Electrical Room

(Showing Static Machine).

Western Infirmary, Glasgow.

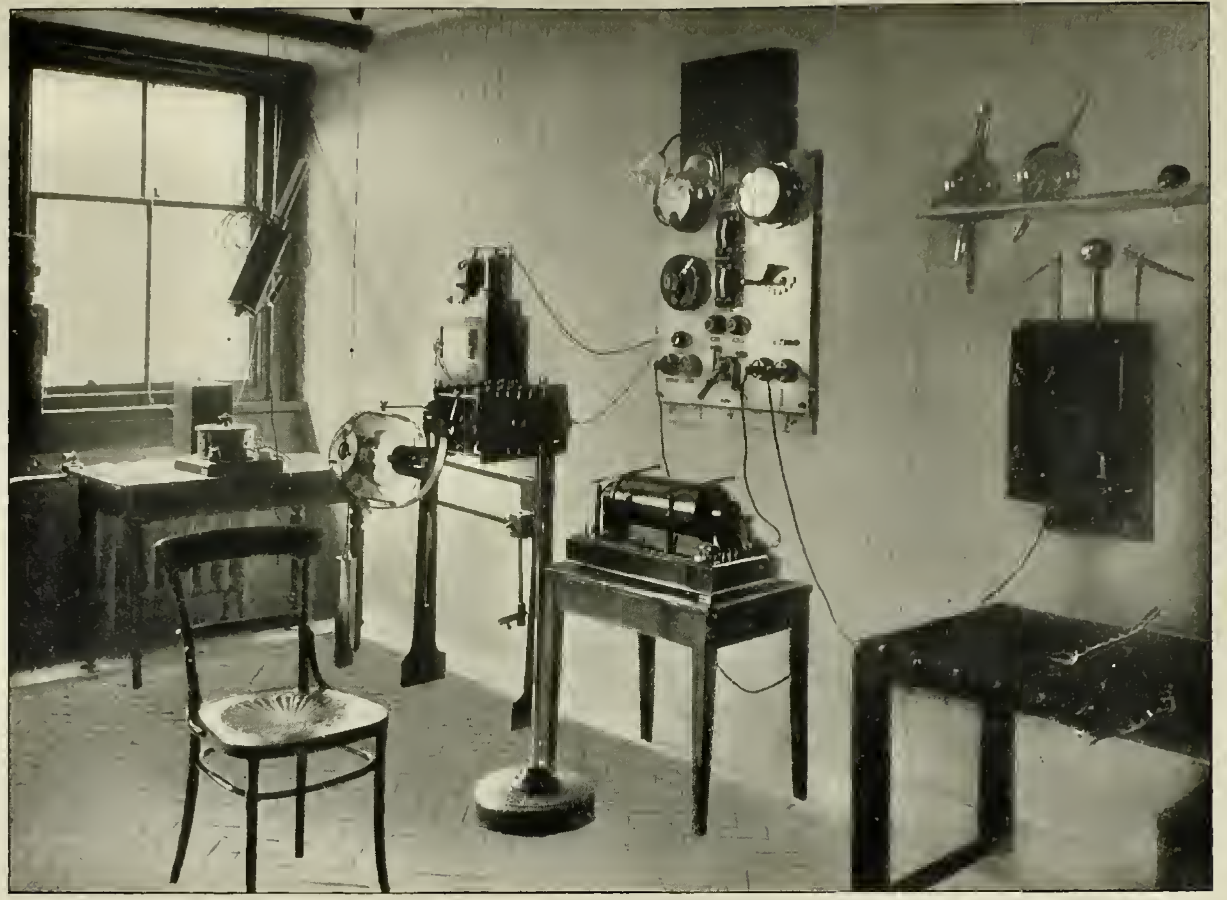


Plate 34—Electrical Room

(Showing Electro-Magnet and X-Ray Apparatus for Therapeutic Use).

Western Infirmary, Glasgow.

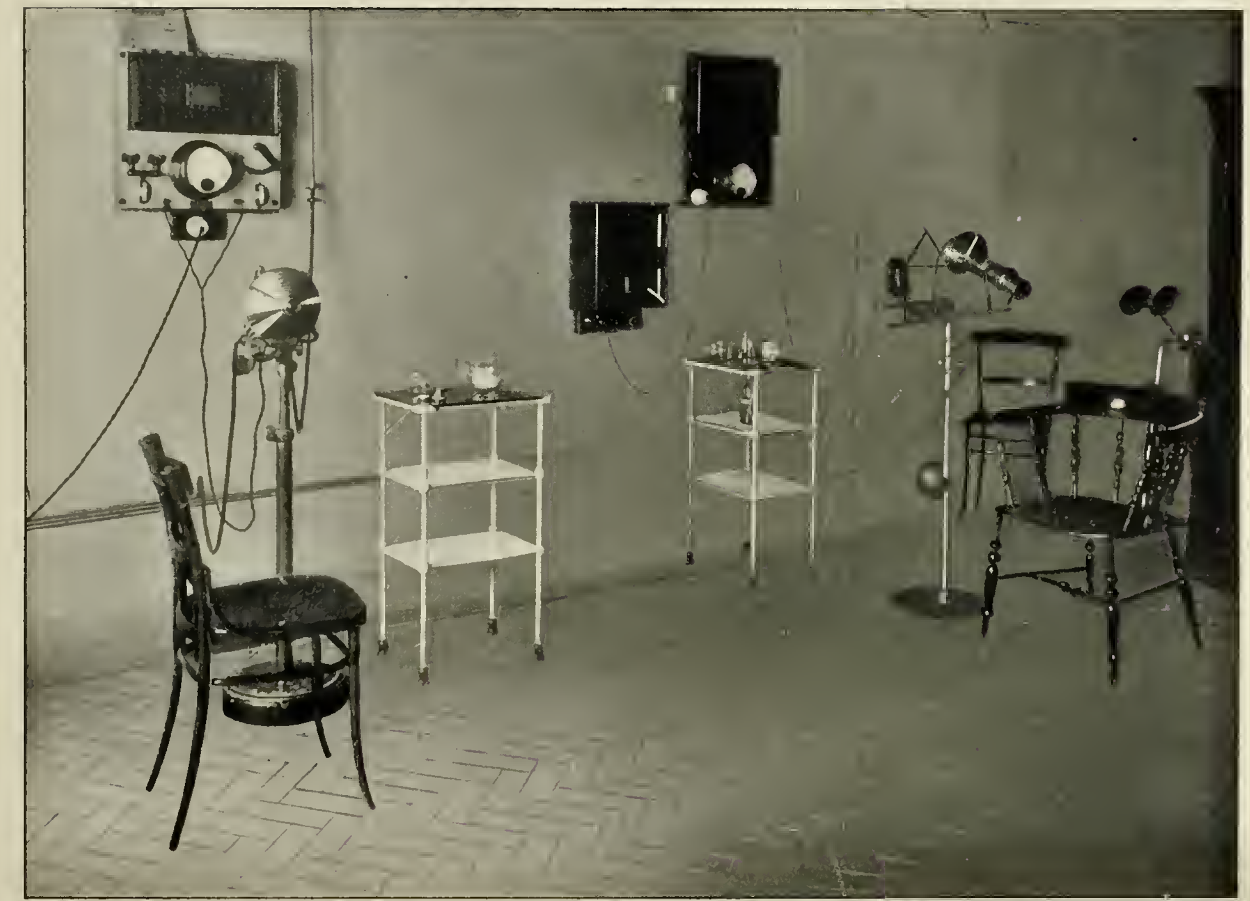


Plate 35—Section of Finsen Light Room.

Western Infirmary, Glasgow.

CHAPTER IV.

SPECIAL UNITS.

THERE remain the special units, such as those for diseases of the ear, diseases of the throat, diseases of the skin, gynæcology, burns, and septic cases unsuitable for the general wards. In all of those, with the exception of gynæcology, provision must be made for both male and female patients. The gynæcological unit should always be removed as far as possible from the septic, and even from the burns and skin wards. Those units are simply modifications of the units already described, and should not be inferior to them as regards either cubic capacity or constructive detail.

Lighting Arrangements.

In the special units for the treatment of diseases of the ear, nose, and throat a room should be provided where patients can be examined by artificial light, arrangements being made whereby the room can be readily darkened. Some specialists prefer to have this room fitted with electric light only. In this case provision must be made for the heating of the laryngoscopic mirrors, either by hot water or by an electric heater. Other specialists prefer to use gas. In this case an ordinary Argand burner is found to be quite suitable, and serves the double purpose of illumination and of heating the mirrors (Plate 29).

Special Baths.

In the unit for the treatment of diseases of the skin a few special bath fittings must be arranged for. Besides two sitz-baths, a hot-air bath should be supplied. This hot-air bath can be arranged in the form of a cabinet, heated by a number of incandescent electric lamps placed in front of reflectors. Such a bath has the advantage that it can be placed in an ordinary, well-ventilated room, so that, while the patient is in the bath, he is breathing fresh, pure air. Various forms of electric baths have been devised. In some the patient can have the bath in the recumbent posture, which is a decided advantage. In others the patient sits upright, only his head showing outside the cabinet.

Isolation Room.

Adjoining the skin wards a room should be provided for the isolation and treatment of such diseases of the skin as scabies, &c. The linen and other articles used in this room must be kept separate and distinct; the linen should be specially marked, so that it may be thoroughly disinfected and washed in order to avoid the possibility of its being mixed with the other linen of the Hospital.

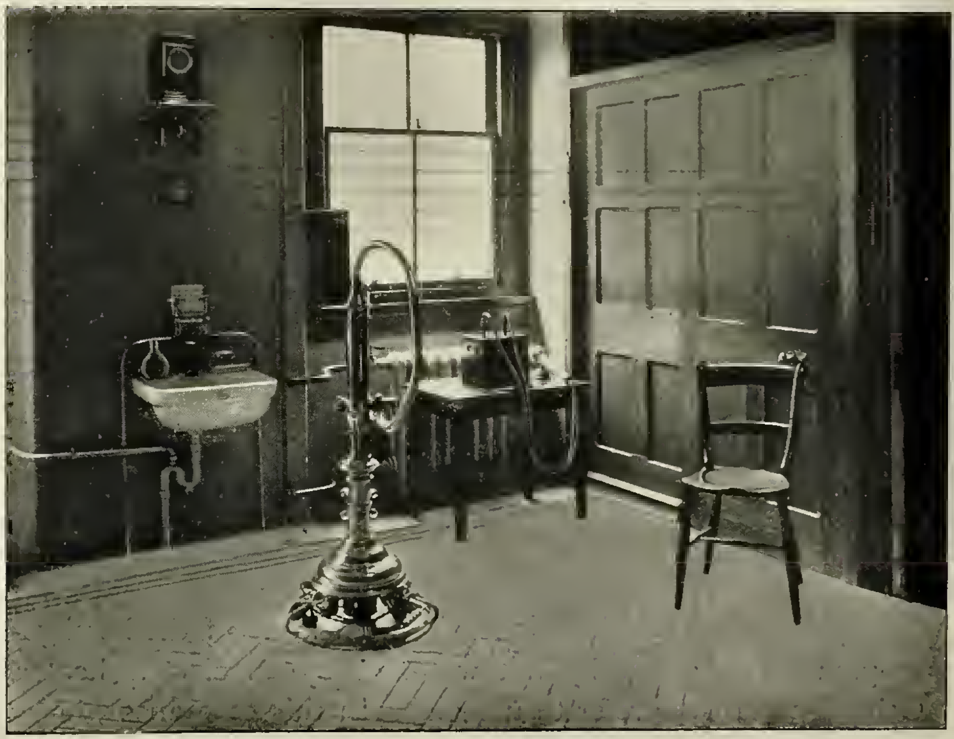


Plate 36—Electrical Hot-Air Apparatus.

The Gynæcological Room.

In the gynæcological unit, although only one large ward is required, a side ward large enough to accommodate three or four patients should adjoin the ward, so that patients who have undergone serious abdominal operations may be kept perfectly quiet for, at least, the first twenty-four hours after operation.

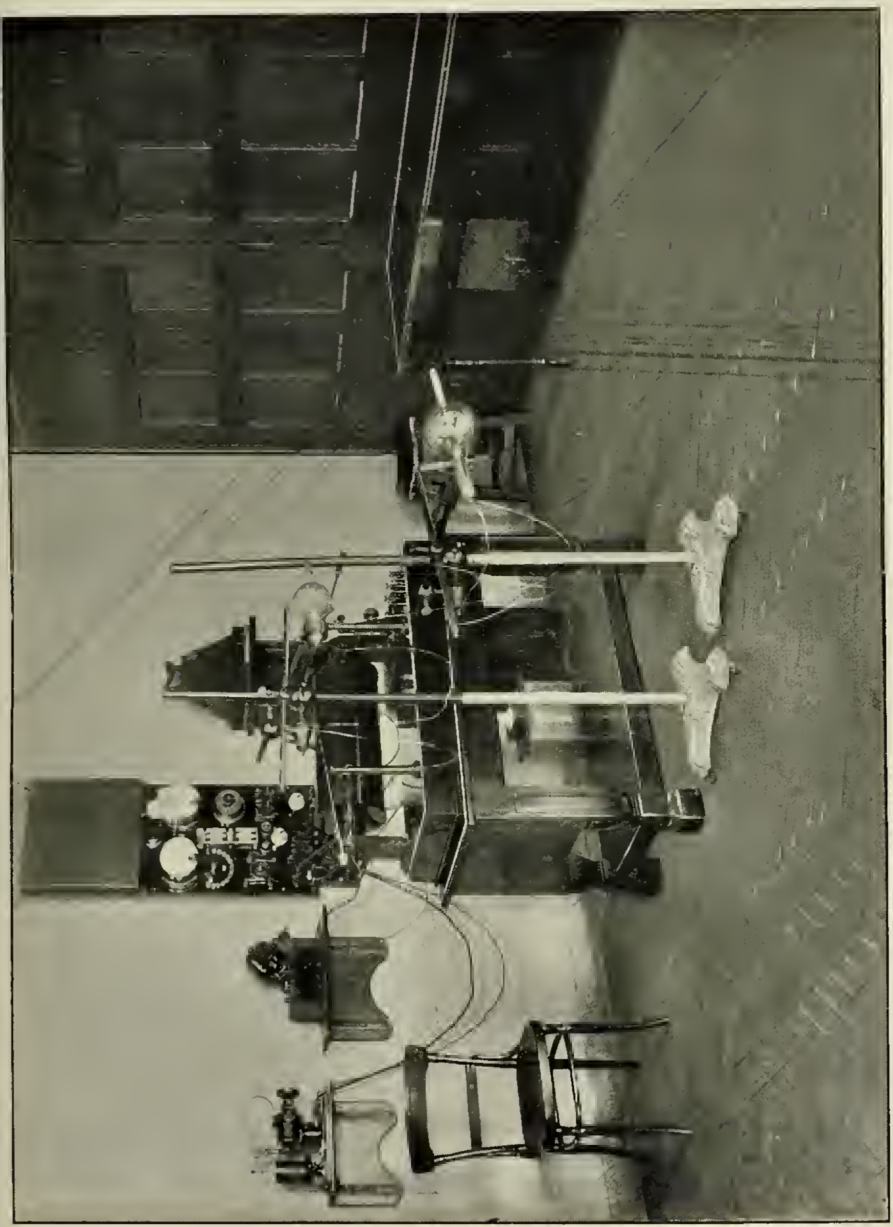


Plate 37—X-Ray Room.

Western Infirmary, Glasgow.

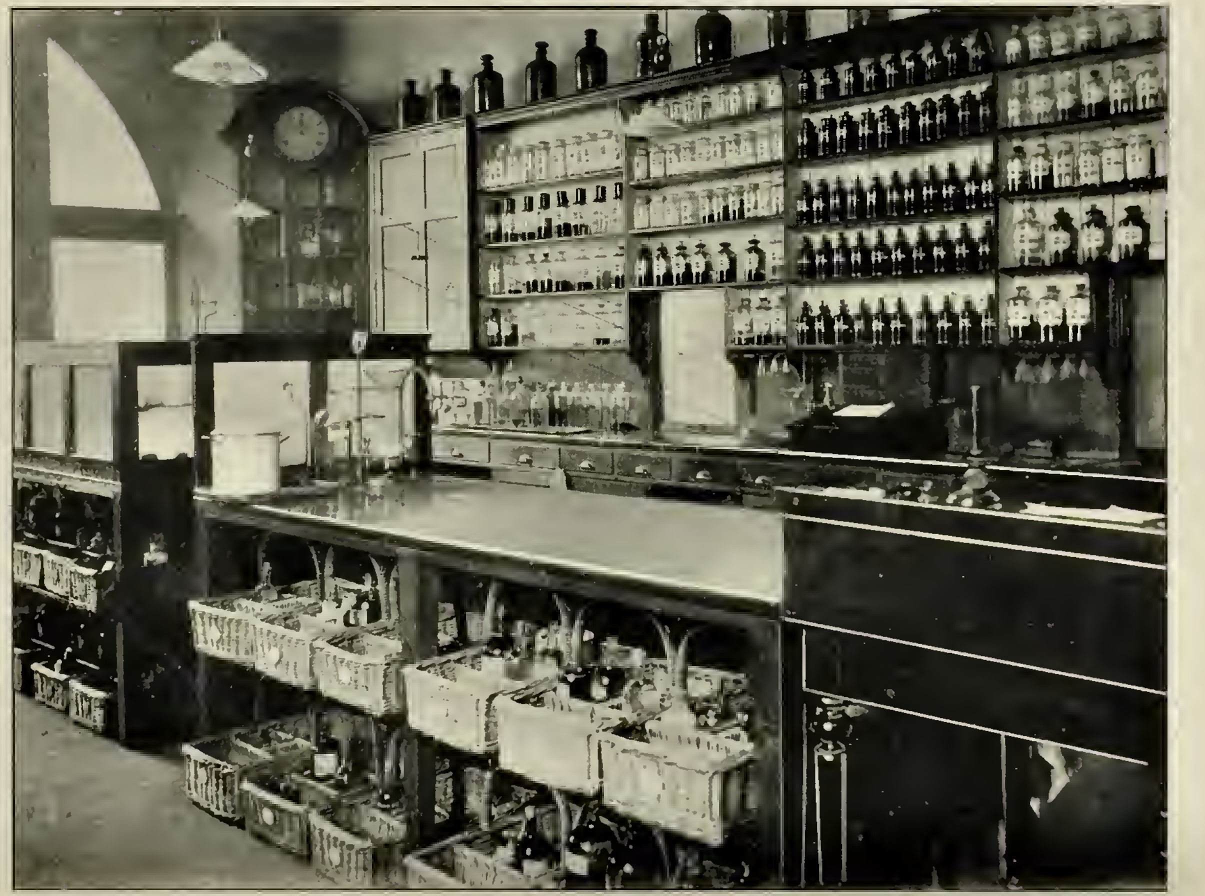


Plate 38—Drug Dispensary.

Septic Unit.

The unit for septic cases should be designed either as a separate building, or placed as far as possible from any other surgical ward. It is necessary to provide a small operating room for septic cases, but no accommodation for students is required.

Plate 39—Portable Electrical Apparatus for Bedside use.

Western Infirmary, Glasgow.

The Treatment of Burns.

Special provision is sometimes made for the treatment of burns, in order that severe cases may be treated in water baths. Those baths should be supplied with warm water, and an arrangement made whereby this warm water can be mixed with cold according to requirements. A constant flow must be maintained to ensure purity. The patient is suspended in the water in a special form of hammock. Air or water cushions may be utilised to add to his comfort. The bath should be emptied and thoroughly cleaned every day, and this can be done without removing the patient. By means of this special arrangement severe burns of the buttocks, back, and thighs can remain in the bath practically undisturbed for weeks or even months. It is important that the water be regularly changed without allowing the temperature of the bath to drop below 99° to 100° F. This is an expensive form of treatment, as constant supervision is required; but when a Hospital is situated in a district where severe burns, such as result from molten metal, are frequently admitted, the expense is justified.

CHAPTER V.

THE NURSING AND WARD MAIDS' STAFF FOR EACH UNIT.

Cost.

ALTHOUGH a Hospital is constructed on the ward-unit system, it does not necessarily follow that the cost of administration per bed, or per patient, in such a Hospital is greater than the cost in one worked on the old principle, where the patients, attended by different members of the medical staff, are treated in the same wards. In practice it is found to be much more satisfactory and more economical to assign a separate unit to each member of the visiting medical staff. Under this system the exact cost of each of the units, and the number and nature of the cases and operations, can be compared and noted.

Resident Medical Officer.

With regard to the staffing of the ward units of a general Hospital, there are many points to be considered. A Resident Medical Assistant should be allocated to each unit, and required to give undivided attention to the patients in the wards. On no account should he be called upon to attend the private operations of the Visiting Surgeon, or to act as his assistant outside of the Hospital. This would either take him away from his proper duties, or deprive him of the necessary outdoor exercise which helps to keep him fit for his work.

Number of Nurses.

The proportion of nurses to patients varies considerably in different countries, in different Hospitals in the same country, and even in different units of the same Hospital. In preparing plans for a Hospital the architect is at once met with the difficulty that no standard has yet been fixed giving the number of nurses and the accommodation to be provided for them in proportion to the number of patients. In every

Hospital there is what should be regarded as the permanent nursing staff. In addition, there is the emergency staff, and allowance must always be made for a certain number of nurses being on holiday or on the sick list. In fixing, then, the number of nurses in proportion to the number of patients, all those factors must be considered.

Further, in calculating the number of nurses required for a Hospital with a certain number of beds, note must be taken of the number of nurses engaged in the casualty and out-patient departments. It is claimed for some Hospitals that the number of nurses engaged in their out-patient department is very large in proportion to the number of their occupied beds. This is a matter that can easily be tested, and due allowance can be made in making any calculation of the total number of nurses required for beds occupied. Other Hospitals claim that their nurses have shorter hours and longer holidays, and that, in consequence, their nursing staff is relatively greater in proportion to the number of occupied beds. But, in dealing with this question, not only must we consider the number of nurses required in proportion to the number of occupied beds, but we must also find out the relative proportion of nurses and probationers. In some Hospitals, for example, the probationers pay a premium and receive no salary; in others a nurse is considered fully qualified after two years' training. In most Hospitals the proportion of first-year probationers to nurses is about 28 per cent. It is important, therefore, to know exactly the total number of nurses employed and the number in the different years of training; for, if we were to draw conclusions from the salaries paid to the nursing staff as a whole, it might be found that some Hospitals have a larger proportion of probationers to nurses than others, and, as a result, the cost per bed for nursing is much smaller than where the total number on the nursing staff is the same, but where the staff is more experienced and more highly paid. It is evident, therefore, that, in dealing with the efficiency of the working staff, it is not sufficient to take into account merely the total number of nurses on the staff and the sum paid for nursing. We must know how the staff is constituted, and the proportion of first-year probationers to nurses. In no case should such probationers for the purposes of the work in the Hospital constitute more than one-third of the total staff of nurses and probationers. In old buildings, where the wards are small and scattered, a larger proportion of nurses is required than in a modern general Hospital constructed and administered on the complete unit principle. But if the Hospital is properly constructed and administered, and if *no unreasonable demands are made*, the proportion of one nurse to every three patients can be regarded as a fair workable standard.

Bedrooms for Nurses.

In constructing a Hospital, therefore, an architect should make provision in the nurses' home for a separate bedroom for one nurse to every three beds in the Hospital. He should, however, provide some extra bedrooms, say 6 per cent. of the total, for out-patient nurses, &c.

Supervision of Nursing Staff.

The whole of the nursing staff is under the direct supervision of the Matron, and a permanent staff is assigned to each of the different units. A ward sister is placed in charge of each unit, and is directly responsible to the Matron for the efficient nursing of the patients. An emergency nurse should be asked for only when there is special urgency; and, in making requisition for an extra nurse, the sister should inform the Matron of the particular patient to whom the nurse is to be assigned and of the nature of the urgency. When the urgency is past the sister should inform the Matron, and the nurse should be relieved, and be available for duty elsewhere. The ward sister should see that the instructions of the physician or surgeon, as the case may be, are faithfully carried out by the nurses placed under her supervision, clearly bearing in mind at all times that she is a servant of the institution, and directly responsible to the Matron for her own work as well as for that of the nurses under her charge.

Responsibility of Ward Sister for the Furnishings of Wards.

Besides attending to the proper nursing of the patients, the ward sister is responsible for the thorough cleanliness of her wards and their annexes; for the inventory of the crockery, linen, and other furnishings of the unit; and should be able to give an accurate account to the Matron of every article worn out, broken, or lost. While the treatment of the patients is her first consideration, no sister can be regarded as efficient who neglects the proper supervision and training of her nurses and ward maids; for, unless the work of the nurses is carefully supervised, and the wards and their annexes kept scrupulously clean, the treatment of the patients cannot be satisfactory. To facilitate the economical administration of a ward unit, the sister should be supplied with an inventory of all the crockery, cutlery, &c., in each ward. An accurate record should be kept of every article broken or lost and of the number of articles replaced. This should be checked by the Matron or her assistant once a month.

The statement on the following page shows how this can be carried out systematically.

The ward sister should be supplied with a further inventory of the stock of linen, &c., in the wards. At the end of each week articles worn out should be noted and a record made of new articles supplied in their place. By means of those simple registers, the efficiency or otherwise of a sister as regards supervision of the wards can easily be estimated. The details of expenditure in a ward unit can be compared with the corresponding details of any other unit in the Hospital, leakages can be readily detected, and waste and extravagance can be checked. In addition to the books named, the sister in charge of a surgical ward unit should have a daily record of all the surgical appliances and dressings, such as clinical thermometers for ward use, and by adopting the "Surgical Dressings Book" as part of the uniform system for each ward, it is possible to note daily the quantity or number of each of the articles used in each month.

Comparisons of Costs.

It is gratifying to be able to record that a marked economy in the use of surgical dressings is now being shown in the best-administered Hospitals, and it may confidently be stated that every institution which uses in each surgical ward the "Surgical Dressings Book" referred to will find it a great aid to economy of these highly-priced materials. All requisitions should be signed daily by the Superintendent of the Hospital. The keeping of such a record serves a double purpose. An administrator who knows exactly the number of patients that

MONTHLY RECORD OF CROCKERY ISSUED TO WARDS.

Columns under the following heading appear on each page of Record:—

Stock in Ward.	Bed Pans.	Small Plates.	Candlesticks.	Scrubbing Pail.
JANUARY.	In addition to the columns shown above there are also columns for—	Brush Tray.	Urine Bottles.	Brock Pail.
FEBRUARY.		Egg Cups.	Trays.	Scuttles.
MARCH.		Large Plates.	Solution Tins.	Coal Shovel.
APRIL.		Mugs.	Dressing Tins.	Large Tin Cans.
MAY.	Chambers.	Bowls.	Leg Tins.	Small Tin Cans.
JUNE.	Slippers.	Spit Mugs.	Knives.	Broomheads.
JULY.	Foot Warmers.	Teapots.	Forks.	Banisters.
AUGUST.	Sick Cups.	Egg Spoons.	Large Spoons.	Scrubbers.
SEPTEMBER.	Ewers.	Jugs.	Small Spoons.	Black Leads.
OCTOBER.	Basins.	Dressing Bowls.	Tea Spoons.	Small Black Leads.
NOVEMBER.	Wash-Hand Basins.	Carafes.	Saucepans.	Nail Brushes.
DECEMBER.	Soap Tray.	Tumblers.	Kettles.	W.C. Brushes.
TOTAL.				

WARD LINEN REGISTER.

Each page of the Register contains columns for the following Articles:—

Stock—February 1.	Blankets.	Crib Blankets.	Binders.	Sheets.
Articles lost, „ replaced, FEBY.—Condemned, „ Renewed, MAR. —Condemned, „ Renewed, APRIL—Condemned, „ Renewed, MAY —Condemned, „ Renewed, JUNE —Condemned, „ Renewed, JULY —Condemned, „ Renewed,	In addition to the columns shown above there are also columns for— Draw Sheets. Death Sheets. Mattress Slips.	Bolster Slips. Pillow Slips. White Quilts. Crib Quilts. Coloured Quilts. Tablecloths. Towels.	Tea Towels. Dressing Gowns. Shirts. Red Blankets. Night Gowns. Capes. Suits.	Roller Towels. Pack Sheets. Pairs Stockings. Pairs Socks. Pairs Slippers.

DAILY REGISTER OF SURGICAL DRESSINGS. Wards,.............. Dr..............................

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 &c.
Absorbent Bandages, doz.																
Calico Bandages, - ,,																
Calico, - - - yds.																
Lawn, - - - ,,																
Butter Cloth, - - pieces.																
Bleached Gauze, - ,,																
Iodoform ,, - ,,																

In addition to the foregoing, each page of this Register contains a separate line for each of the following Articles:—

Zinc-cyanide, - pieces.
Gamgee Tissue, - lbs.
Lint, - - - ,,
Boric Lint, - - ,,
Absorbent Wool, - ,,
Bleached Wool, - ,,
Grey Wool, - - ,,

Wood Wool, - - lbs.
Wood Wool Tissue, ,,
Wood Wool Wadding, ,,
Bed Sheeting, - yds.
Jaconet, - - ,,
Gutta Percha Tissue, ,,
Silk Protective, - ,,

Rubber Plaster - reels.
Extension Plaster, - rolls.
Plaster Muslin, - pieces.
Elastic Webbing, - yds.
Drainage Tubing, - ,,
Junk, - - - pieces.
Poroplastic, - - sheets.

Chloroform, - - lbs.
Glycerine, - - W.qts.
Methylated Spirit, - ,,
Turpentine, - - ,,
Soap, Carbolic, - cakes.
,, Pumice, - ,,

DAILY REGISTER OF GLASSWARE, INSTRUMENTS, LIGATURES, STATIONERY, &C.
Wards,.............. Dr..............................

Containing columns for Date, Description of Goods, Amount.

WARD RECORD OF STIMULANTS USED FOR WEEK ENDING.......................... WARD..............

		NAME.	DISEASE.	STIMULANT.	QUANTITY.							TOTALS.	
					Sun. oz.	Mon. oz.	Tues. oz.	Wed. oz.	Thur. oz.	Fri. oz.	Sat. oz.		

* COMPARATIVE STATEMENT OF STIMULANTS USED DURING THE MONTH OF.................19...

MEDICAL OFFICERS.	Whisky. oz.	Brandy. oz.	Gin. oz.	Port. oz.	Sherry. oz.	Claret. oz.	Total Quantity of Stimulants used. oz.	Champagne. bot.	

* A copy of this statement is sent to each member of the medical staff.

RECORD OF STIMULANTS GIVEN OUT EACH DAY.

Period ending..............................*19*...

Name of Medical Officer.	Month.		1st				2nd	3rd	4th	5th	6th	7th	8th, &c.
	Patients.	Ward.	Wh.	Br.	Gin.	Pt.							

WARD RECORD OF AERATED WATERS USED.

WARD..............

DATE.		PATIENT'S NAME.	NO. OF SYPHONS.						
			Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.

SPECIMEN BED CARD.

.... HOSPITAL.

Med. Dept.,..Males.
Ward..Reg. No.................................
....
Age,...Country,...
Religion,..................................Soc. Con.,...
Occupation,..
Residence,..
....
Admitted,...19.........
Disease,..... ....
....
Dismissed,..19.........
Result, ...
Res. Asst.,..................................... Supt.,...............................

The Departments are distinguished by different coloured cards.

SISTER'S MONTHLY RETURN OF STORE ISSUES AND BREAKAGES.

Days of Month.	Bed Pans.	Chambers.	Slippers.	Foot Warmers.	Sick Cups.	Ewers.	Basins.	Wash-hand Basins.	Soap Tray.	Brush Tray.	Egg Cups.	Large Plates.	Small Plates.	Mugs.	Bowls.	Spit Mugs.	Teapots.	Egg Spoons.	Jugs.	Dressing Bowls.	Carafes.	Tumblers.	Urine Bottles.	Trays.	Candlesticks.	Solution Tins.	Dressing Tins.	Leg Tins.	Knives.	Forks.	Large Spoons.	Small Spoons.	Tea Spoons.	Saucepans.	Kettles.	Brock Pail.	Scrubbing Pail.	Scuttles.	Coal Shovel.	Large Tin Cans.	Small Tin Cans.	Broomheads.	Bannisters.	Scrubbers.	Black Leads.	Small Black Leads.	Nail Brushes.	W. C. Brushes.
Stock in Ward.																																																
January.																																																
Broken and worn out, - -																																																
Replaced, - -																																																
February.																																																
Broken and worn out, - -																																																
Replaced, - -																																																
March.																																																
Broken and worn out, - -																																																
Replaced, - -																																																

have been treated, the number of operations performed, the quantity and cost of the surgical dressings and other materials used, is in a position to place before his managers an accurate comparative statement from day to day, week to week, or month to month, of the different units of the Hospital, and to show the results. The surgeon in charge of the unit, if he desires, can see on any day what it costs to treat his patients. He can also compare one day or one week with another, a privilege that he will probably find of great value in the treatment of his private patients. In some cases demands are made in Hospitals for expensive fittings and appliances which are not to be found in private nursing homes.

The Ward Maids.

Having dealt with the number of nurses to be allowed for a Hospital of a known number of beds, and stated the proportion of one nurse to every three patients as a reasonable provision, including day and night service, it is now necessary to consider the number of ward maids required in a modern Hospital to perform the menial duties, which in former days had to be undertaken by the nurse. As a general rule, one ward maid should be allowed for each ward ; and, in addition, such assistance as the Matron considers necessary for the cleaning of corridors and stairs leading to the unit. While the number of nurses required for a ward unit varies according to the nature and severity of the cases, there is no such variation in the number of ward maids. In a medical unit, such as has been described and illustrated, one ward maid should be allowed for each ward. In the surgical unit, besides one ward maid for each ward, an additional maid should be granted for the operating theatre and the rooms connected with it.

CHAPTER VI.

THE MEDICAL OFFICER AND THE WARD UNIT.

Apartments of Resident Medical Officer.

FOR reasons of economy objection may be taken to the fact that, in the medical and surgical ward units, a suite of rooms has been provided for the Resident Medical Officer in charge. This is the Scottish system of Hospital construction, and there are many excellent reasons to be urged on its behalf in modern Hospital construction.

It will be observed from the plan of a complete ward unit, described in Chapter II., that accommodation is provided in the unit for a Resident Medical Officer. Such a departure from the older method of housing the resident medical staff, under which centralisation was the rule, requires some explanation and justification. But the advantages outweigh the disadvantages so completely that this provision for a Resident in each unit will no doubt eventually become universal wherever the unit system is adopted.

The rapid progress of bacteriology, hæmatology, electro-therapeutics, not to mention the modern developments in surgery, foster the ever-increasing tendency to specialise ; and for young men who wish to devote themselves to original work in any special department there is no better opportunity than that afforded by the post ot Resident in a modern Hospital. There he has the clinical material at hand—there the most elaborate plant and equipment, with every facility for study and research, are at his disposal, with an increasing number of post-graduate fellowships, lectureships, and other opportunities for those who wish to pursue any particular line of study. The inevitable result is that in a large Hospital the position of Resident is an envied one, and commands, as a rule, the most distinguished graduates of their time. Those graduates seldom receive a salary, or, if they do, the salary is purely nominal, although the amount of work which they accomplish represents a considerable asset to the institution. Their main desire in attaching themselves to a Hospital is to gain as much knowledge and experience as possible, and to profit by the special facilities afforded for some particularly congenial work.

The Hospital, then, secures the willing and valuable service of its Resident Medical Officers practically without outlay beyond the cost of their board and residence. It is but reasonable that, in return, the provision for their comfort and convenience should be the best available. A man cannot as a rule do original or satisfactory work, or prepare a thesis for, say, a higher degree, if obliged to share rooms with another man with whom, it may be, he has but little in common. The man who wishes the necessary quiet for study cannot obtain it with a partner whose pet hobby is instrumental music, and who at every conceivable opportunity, is at the piano in their sitting-room or in the room adjoining.

To the Resident, therefore, the advantage in having his rooms in the ward unit is obvious. Here he has the strictest privacy. He has facilities for work when not required in his wards. There is no unnecessary intrusion upon, or unwelcome interruption of, his studies. His apartments are to all intents and purposes his home. He can see his friends in his own sitting-room, and when he wishes the company of his colleagues, he can obtain this either in the common dining-room or billiard-room, or by making arrangements for visitation. This is entirely within his own control.

But the advantage is not on the side of the Resident only. The benefit to the Hospital is even greater. The main object in having a Medical Officer in residence is that the services of a qualified medical man, familiar with the details of each case, shall be available on the shortest notice. It is quite conceivable that many cases, such, for example, as hæmorrhage, uræmia, tetanus, fits, &c., may require the immediate attention of the Medical Officer at any hour of the night or day, and that the notice may be of the shortest. Where the Resident's quarters are within the unit he is always on the spot when a critical case is under his care, and yet need not hang about the wards awaiting developments. Under the old arrangement, whereby the Residents lived in a central block, the time occupied by the nurse in getting into communication with the Resident, either by telephone or messenger, and the time required for the Resident to reach the bedside, meant dangerous delay. Under the old system no Resident Medical Officer could justly be held responsible for such delays.

It may be claimed that the placing of the Residents' quarters in each unit involves extra service, and, therefore, increased cost and difficulty in administration. The quarters of the Medical Officer, although forming part of the unit, are not under the charge of the ward sister. The care of them devolves on the housekeeper, as in well-administered Hospitals the domestic arrangements are quite distinct from the curative. The domestic staff is under the supervision of a housekeeper, and the Residents' quarters, no matter where situated, are under her immediate care. The more scattered those quarters are, the more inconvenient will be their supervision. This disadvantage, however, is theoretical rather than real, and what actually exists is readily overcome. The distances to be covered are no greater for the housekeeper than for the Superintendent and Matron, who have to supervise every ward, and, with the convenience of lifts to each floor, the disadvantages are reduced to a minimum. The supply of coal for the Residents' rooms is delivered by the porter when he delivers that for the ward kitchen, &c.

Then it must be clearly understood that the Resident staff are to have no food in their private apartments. The mess-room, billiard-room, and smoking-room are common rooms; and, even in case of illness, it is found much more satisfactory to transfer the invalid to one of the side wards where he can be properly treated and nursed, leaving his apartments free for the substitute who undertakes his duties. So that in no circumstances is food served in his quarters. The general mess-room is situated in the central administrative building convenient to the kitchen and service rooms, and should, of course, be in telephonic communication with all the ward units.

It must not be supposed that a housemaid is required in each unit to attend to the Residents' rooms. In a well-appointed Hospital where lifts lead to each floor one maid to every five suites of rooms is all that is necessary to overtake the work and to do it thoroughly. The inconvenience to the supervising housekeeper is therefore trifling, and any additional labour involved by this system as compared with the older method is so infinitesimal that there is no appreciable increase in the cost of administration. The increased efficiency obtained more than counterbalances any inconvenience.

The quarters assigned to the Resident Medical Officer in the ward unit-plan already shown (Plan No. 4.) consist of a sitting-room, bedroom, and bathroom. These are entered from a vestibule, so that there is complete privacy; and the experience so frequently met with under the old system of several Residents having to wait their turn for a bath is wholly avoided. Each Resident has his complete quarters in his unit. His unit is thus under his direct supervision, and his *status* in the Hospital is enhanced. Nowhere is the advantage of this arrangement better exemplified than in the Admission Department. Regrettable delays occasionally occur where the quarters of the casualty Medical Officer are situated at some distance from his department, and there is no justification for perpetuating a system of Hospital construction and administration, which renders such avoidable delays possible, when it can be demonstrated that the complete unit system with the Residents' quarters incorporated does not materially add to the cost of working.

RECORDS, &c., FOR WHICH RESIDENT MEDICAL STAFF ARE RESPONSIBLE.

Record of Surgical Operations.

On each page of the Record there are columns under the following headings:—

Date of Admission.
Date of Operation.
Date of Dismission.
No. of Days in Home.
Patient's Name.
Age.
Ward.
Disease.
Duration of Disease.
Operation.
Primary or Secondary.
Result.
Operation performed by.
Remarks.

Journal of Urine Analyses.

Ward,............ Name,......................... ....Journal. Page,......

On each page of the Journal there are columns under the following headings:—

Date.
Quantity in 24 hours.
Specific Gravity.
Reaction.
Colour.
Sediment.
Albumen.
Sugar, Chlorides, &c.
Microscopic Characters.
Remarks.

REGISTER OF DEATHS.

Reference Number of Case in Admission Register.	Name.	Date and Hour of Death.	Cause of Death.	Whether a *Post-mortem* Examination was made.	Result of *Post-mortem* Examination.

ANÆSTHETIC REGISTER.

Date of Admission.	NAME OF PATIENT.	Age.	Condition of health previous to Operation.	Date of Operation.	Nature of Operation.	Anæsthetic used, method of administration, and amount used.

Time Patient was under Anæsthetic.	Complications, if any, during Anæsthesia, and methods employed to combat such.	After Complications.	If Complications, were they attributed to (1) Anæsthetic; (2) Severity, duration, or special character of Operation; or (3) Due to condition of Patient previous to Operation.

SUPERINTENDENT'S ORDER BOOK.

COUNTERFOIL.

NAME OF HOSPITAL, ...

No............

..................19...

To.................................

ORDER.

NAME OF HOSPITAL, ...

No.........   ....19...

M...

....

Please deliver the undermentioned Goods
AT THE DRUG DISPENSARY.

N.B.—The Invoice attached to this Order must be returned with the Goods.

INVOICE.

N.B.—No goods will be received without this Invoice.

No..............   ....19...

The Managers of the .... Hospital, ...

Bought of...

....

CHAPTER VII.

THE OUT-PATIENT UNIT.

THE advantages of having an out-patient department attached to a general Hospital are universally recognised, and this department holds a most important place in every modern institution. It forms a convenient and suitable channel through which patients may enter the Hospital for indoor treatment. Many patients can be treated in the out-patient department without being admitted into the wards, while others may be kept under observation until their condition calls for indoor treatment.

In the out-patient department of a teaching Hospital students have an opportunity of studying the commoner ailments that they will be most frequently called upon to treat when they go into practice, but which they never see in the wards. It also forms an excellent school for young physicians and surgeons, as they come into direct touch with the students who are observant and critical. It should also constitute part of every nurse's training, for the experience acquired in this department is of the utmost value to a nurse, more especially if she takes up district nursing among the poor.

Planning the Out-Patient Department.

In designing an out-patient department, the position and character of the site and its relation to the Hospital proper must receive careful study. In conjunction with this, the number of patients to be treated on each day of the week, the number of new patients and the number of return cases in daily attendance, the number to be treated in each separate department, and the number of students in attendance, must be ascertained. With these data the architect should provide the necessary accommodation in the simplest possible way with a view to securing not only efficiency in design but economy in working.

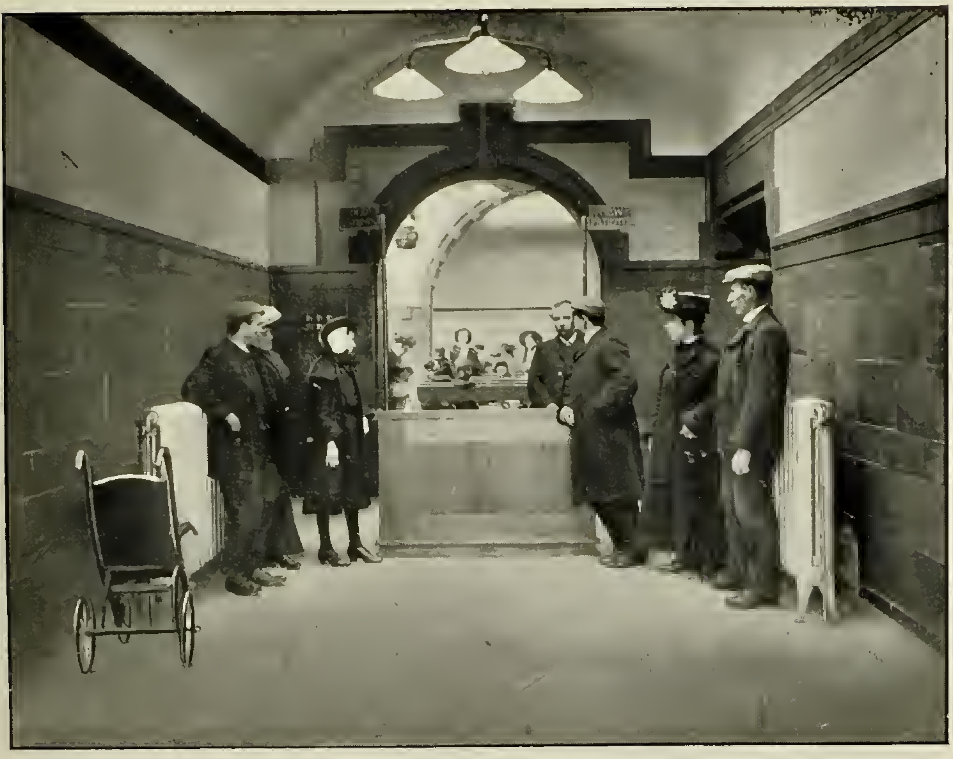


Plate 40—Vestibule in Out-Patients' Department.

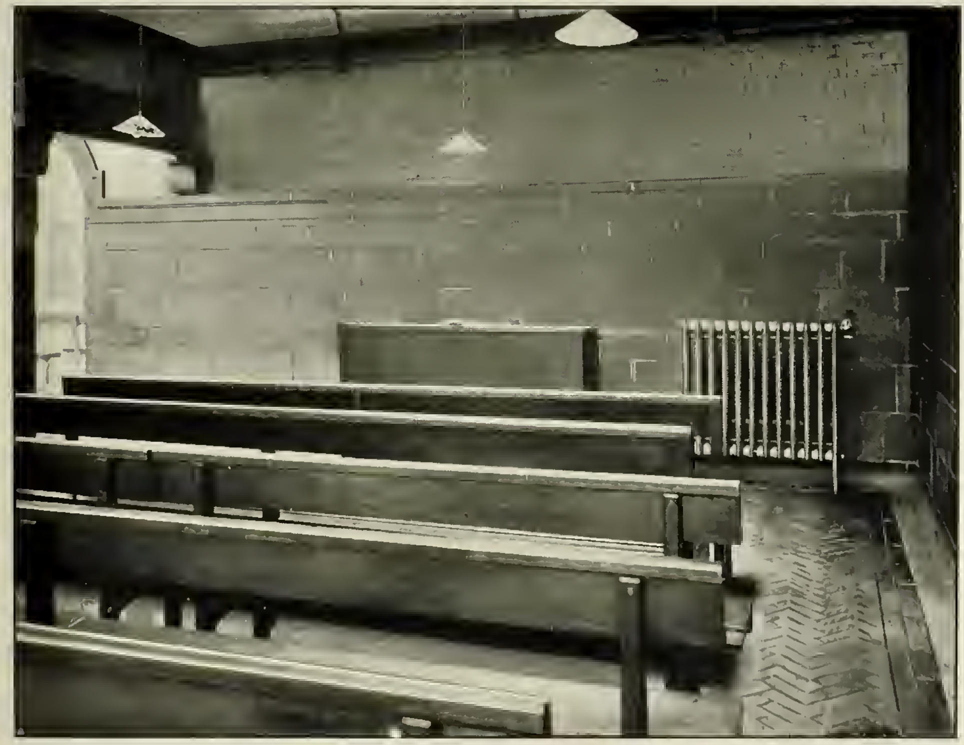


Plate 41—Out-Patients' Enquiry Room.

The out-patient department should be a one-storey building quite apart from the Hospital, but may be connected with the Hospital by a covered way or corridor. The entrance should be separate and distinct from the exit and from the doors of the Hospital proper, so that out-patients may have no means of communicating with indoor convalescent patients who may be airing or exercising in the grounds. This is of the utmost importance, as infectious disease might conceivably be communicated to in-patients, or food, liquor, &c., might surreptitiously be handed to convalescent patients, and they in turn might pass it on to acute cases in the wards, and in this way do incalculable mischief. A separate entrance should also be provided for students.

The Preliminaries of Admission.

When a patient arrives at the entrance gate he should be met in the vestibule (Plate 40) by a porter, and be directed into the inquiry room (Plate 41), where the Registrar should take a note of the following particulars :—

Name, Age, Occupation, Residence, Employer, Weekly Wage, and any other details that may be considered necessary with a view to excluding unsuitable cases.

The patient is then furnished with a numbered book or report sheet bearing his name and number, also the name of the physician, surgeon, or specialist, as the case may be, to whom he is allocated. This slip or card should have printed in bold letters instructions as to the days and hours on which the patient should return for further treatment. It is usual to have these books or report sheets of different colours in order that the attendant may distinguish at a glance the patients of each surgeon or physician.

Adjoining this inquiry hall there should be two small adjacent rooms, one where the patient may be examined by the Resident Physician so as to enable him to determine the department to which the patient should be sent ; the other, where any patient suspected to be suffering from a contagious or infectious disease can be retained until the case has been diagnosed; and, if it proves to be infectious, until arrangements have been made for the removal of the patient to a Hospital for infectious disease. This room should have a door opening to an outside court, so that the patient can

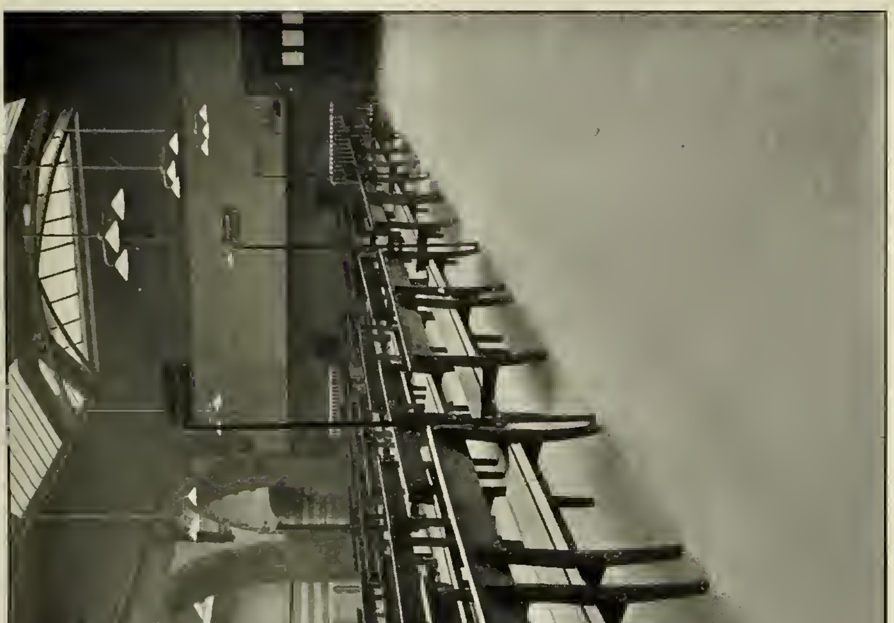


Plate 42—Out-Patients' Waiting Hall

(Showing Sections reserved for each member of Consulting Staff).

be removed to the ambulance wagon without again passing through any part of the building.

The Out-Patients' Hall.

All patients on their second or subsequent visits to the department are passed by the porter into the large waiting hall (Plate 42), and are seated on benches opposite the consulting room of their medical attendant. Finger-posts bearing the name of the physician or surgeon are attached to each series of benches. The size of the waiting hall will be determined by the number of daily applicants; but, in calculating this space, it should be kept in mind that many of the patients are children, cripples or physically enfeebled, and as they are invariably accompanied by one, sometimes two, relatives, the

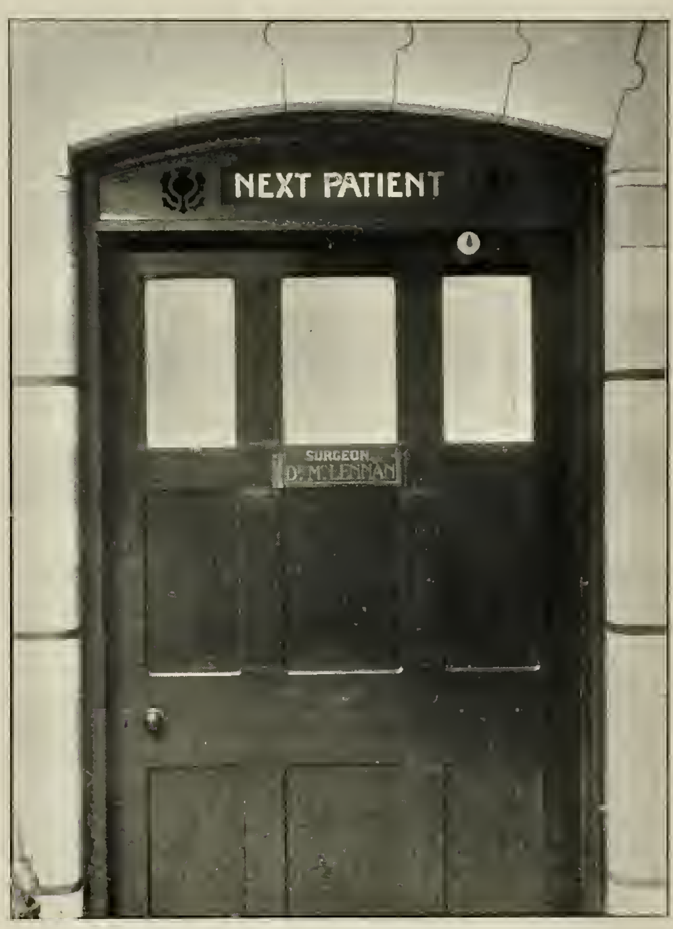


Plate 43

(Showing method of intimating to Patient waiting that he can now be seen by the Physician).

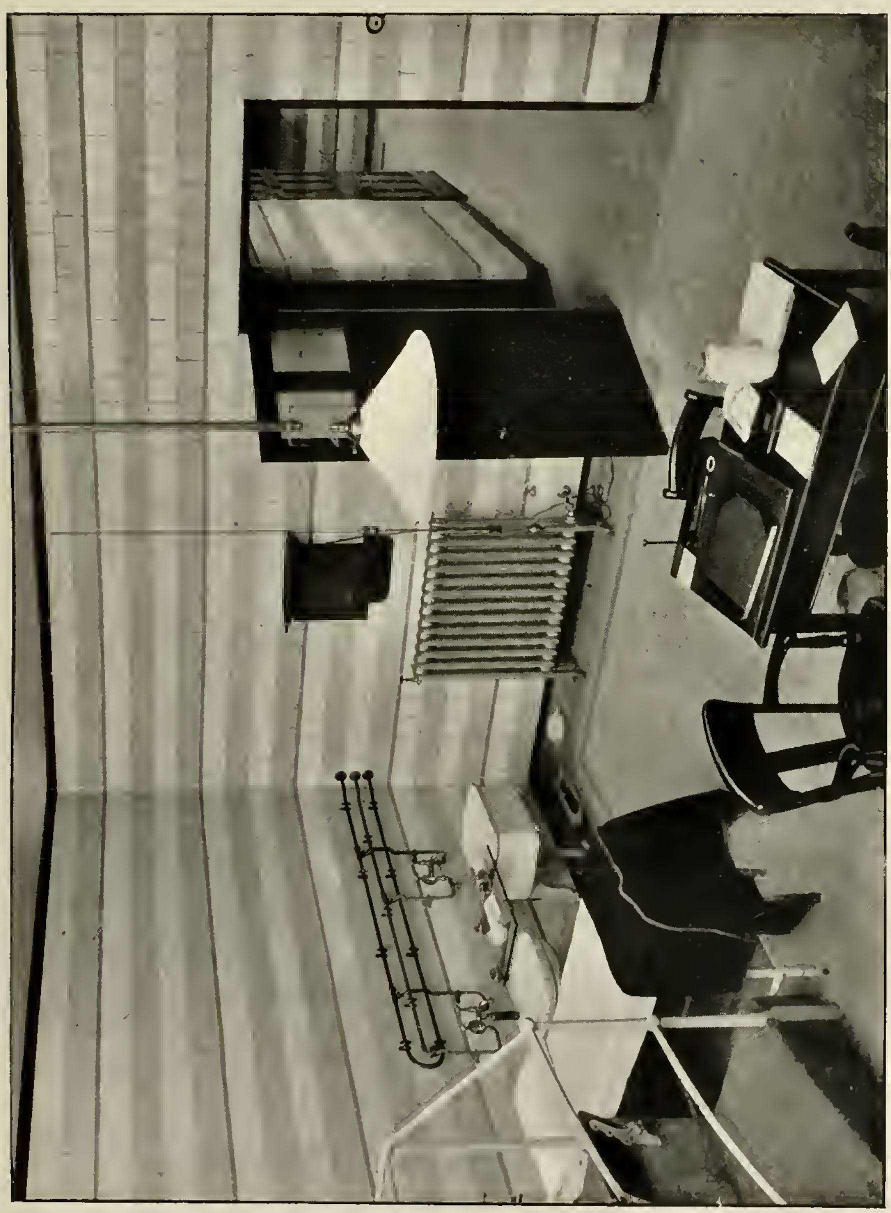


Plate 44—Area of Out-Patients' Consulting Room.

waiting hall should seat at least double the average number of patients applying daily for treatment. A waiting hall measuring 80 feet by 30 feet will give accommodation for over 400 patients, and still leave ample room for dividing the patients for the various departments. The arrangement of the waiting hall requires careful study, not only for convenience in working, but for economy in service and easy and effective supervision.

Lighting Arrangements.

If possible, the building should be so designed that the consulting rooms receive the maximum of north light. Adjoining the waiting halls suitable lavatory and water-closet accommodation should be provided for both sexes. These water-closets and lavatories should be in an open court, with a cut-off passage completely detaching them from other parts of the building.

A convenient method of communication between the physician or surgeon and the waiting hall has been adopted in the out-patient department of the Western Infirmary, Glasgow. This method obviates the necessity for a separate porter to regulate the patients for each consultant. An automatic arrangement has been installed whereby a bell is rung, and the words "next patient" are illuminated over the door leading to the consulting room whenever the Medical Officer pushes a knob. By this arrangement the patients pass into the consulting room in turn (Plate 43).

Consulting Rooms (Plates 44 and 45).

Two small rooms should be annexed to each consulting room, one for each sex, where, if necessary, patients may undress (Plate 46). These rooms should be so placed that patients may pass from the consulting room to either dressing room without being seen from the waiting hall. In each room a sink with hot and cold water should be provided; also a portable light, in addition to the usual fixed lights. The building should be so arranged that patients can retire from the dressing rooms without again entering the consulting room, and the exit corridor should be so placed that patients may pass out without returning to the general waiting hall. This corridor

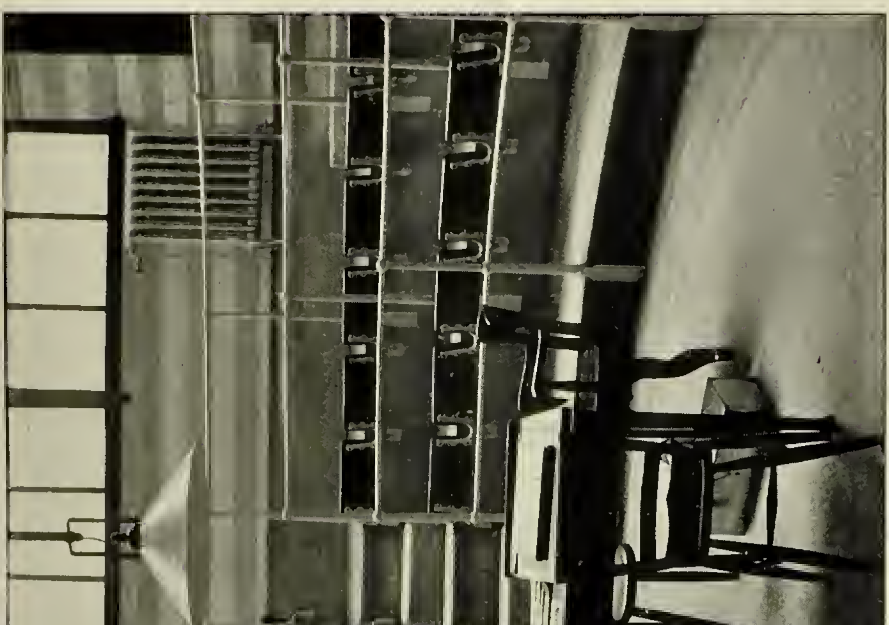


Plate 45—Students' Gallery in Out-Patients' Consulting Room

(Entrance shown in right-hand corner).

ends in the dispensary waiting hall adjoining the exit vestibule.

The need for suitable accommodation for the dressing of minor surgical cases is often overlooked in designing an out-patient department which treats such cases. Two well-lit and well-ventilated rooms, one for each sex, should adjoin the waiting hall (Plate 47).

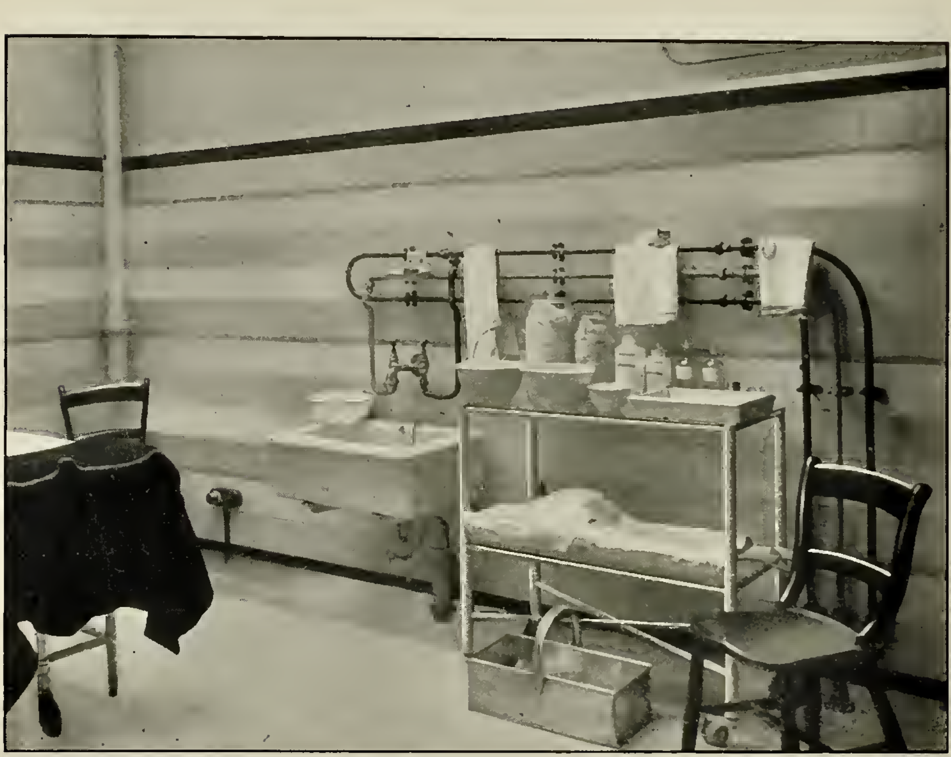


Plate 46—Dressing-Room attached to Consulting Room (Out-Patients' Department).

Western Infirmary, Glasgow.

The Surgical Dressing Room.

Plate 47 illustrates such a room, showing a range of stalls; each stall has a sink with hot and cold water, some of the sinks being placed on the floor level for the treatment of such cases as injuries to the feet and ulcers of the leg. The stalls are divided by partitions of enamel slate, and have washable curtains in front, so that each stall is self-contained. An electrical steriliser for instruments and stands for lotions and dressings are provided on the wall opposite the stalls. Six basins should be fitted up, three at each end of the room, for the exclusive use of the nurses and dressers. Although only minor operations are performed in an out-patient

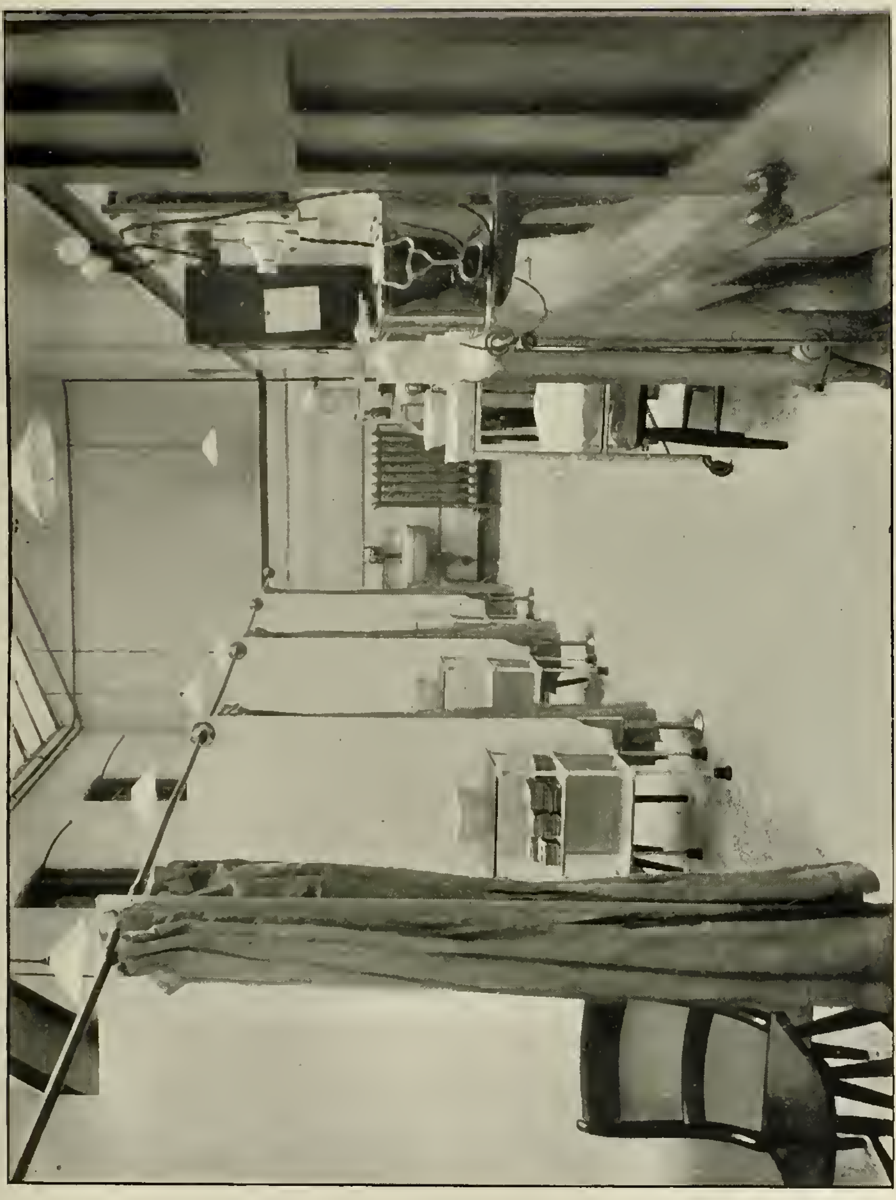


Plate 47—Room for Minor Surgical Dressings (Out-Patients' Department).

Western Infirmary, Glasgow.

department, nothing should be left undone to secure the strictest asepsis. This is in the interest not only of the patient, but also of the education of the student.

Near the operating theatre there should be provided (1) a room for the preparation of all dressings required in the department, and (2) a sterilising room, well lit and well ventilated. An anæsthetic room and recovery rooms should also adjoin the operating theatre. Adequate provision for students should be made in the theatre as well as in the consulting rooms. A cloakroom for students should be provided at their entrance door outside the consulting rooms.

Free Medicine.

The question as to whether patients should or should not be supplied with free medicine is surrounded with difficulties. If a careful watch is kept and no unsuitable patient admitted, then there is not likely to be much, if any, abuse of charity in giving medicine free. All patients should pay for their medicine bottles; if they are so poor that they cannot do this, they are fit subjects for poor relief and should be treated at the poor law dispensary.

Materials.

The materials used in the construction of an out-patient department should be carefully considered from a sanitary point of view. For the consulting rooms it is probable that tiled walls and terrazzo floors will be found best; but experience has shown that it is an advantage to have the walls of the waiting hall constructed of majolica or Carrara, and the floors of some hard wood, such as block maple, as some patients come without shoes, and terrazzo in this climate is too cold for their feet. All angles should be avoided, and the whole building should be designed with a view to facilitate thorough cleansing with the utmost economy of labour.

All plumber work should be exposed, and the simplest patterns of basins and sinks adopted.

CHAPTER VIII.

THE HOSPITAL KITCHEN.

Situation.

THE situation of the kitchen relative to the other departments of the Hospital is a matter regarding which various opinions are held. Much depends on the area of the site. Where the area is limited, as is frequently the case in city Hospitals, every available foot of ground is utilised, and the buildings are necessarily more cramped. If the site is sufficiently large, a detached building is to be preferred for the kitchen, and its situation should be on the level of the basement or ground floor behind the central administrative buildings, or it may with advantage be connected with the Hospital by a cross-ventilated passage. When the ventilation of the kitchen is carried out by means of an extraction fan, and this cut-off passage separates it from the other parts of the institution, the corridors and the Hospital generally should be as free from the undesirable odour of cooking as if the kitchen were on the top storey. This situation behind the main buildings and adjacent to a central corridor in the basement, running the full length of the Hospital and connected with the different floors by lifts, facilitates the efficient and rapid service of hot food to the various units.

Economising Steam.

It has been argued that the kitchen must be placed as near as possible to the steam boilers in order to economise steam. There is little to justify such a proposal, for if the steam pipes are properly covered and carried in a duct from the boiler to the kitchen, the loss of steam is hardly worth taking into account. Calculations recently made give the following results :—In an uncovered pipe, 120 feet long and 6 inches in diameter, 1·3939 lb. of steam condenses per lineal foot per hour, when the pressure of steam in the boiler is 100 lbs. and the external temperature 62° F. When the pipe is covered only ·1747 lb. condenses under the same conditions. In a properly covered pipe, therefore, with a steam pressure of 100 lbs., and assuming that 293 lbs. of steam are passing through the pipe per minute, the loss is only 1 lb. pressure at a distance of 120 feet. Consequently the question of distance from the boilers has very little practical bearing on the situation of the kitchen, which must be governed by other and more important considerations.

Position of the Kitchen.

The kitchen should, of course, be placed in a central position, and, where the site is limited, the top flat of the central administrative block is much in favour. When the kitchen is so placed the odour of cooking does not permeate the other parts of the building, and in the circumstances indicated this is probably the most convenient position attainable. There are some disadvantages, however, which must be considered. In the first place, there is additional cost of construction, because, in order that the building may carry the heavy apparatus now universally adopted, the walls and floors must be stronger than would otherwise be required. There is, further, the increased labour in service. All food must first be taken up to the kitchen, and then taken down again for distribution to the various parts of the Hospital. All fuel must be similarly conveyed, and all ashes, refuse, &c., taken down. The distance of the kitchen from the various stores (provisions, meat, milk, &c.) when these are on the basement floor is also a disadvantage. To a certain extent the resulting inconvenience can be modified by lifts, but, where a detached basement site is available, the arguments are all in favour of placing the kitchen there.

Size of Kitchen.

The size and shape of the kitchen, when in a detached building, can be varied to suit the requirements of the Hospital, and are governed only by those requirements. In top-storey kitchens the size and shape are pre-determined by architectural considerations of the understructure, to which the kitchen must necessarily conform. When the size is not proportioned to the work required from the kitchen, and

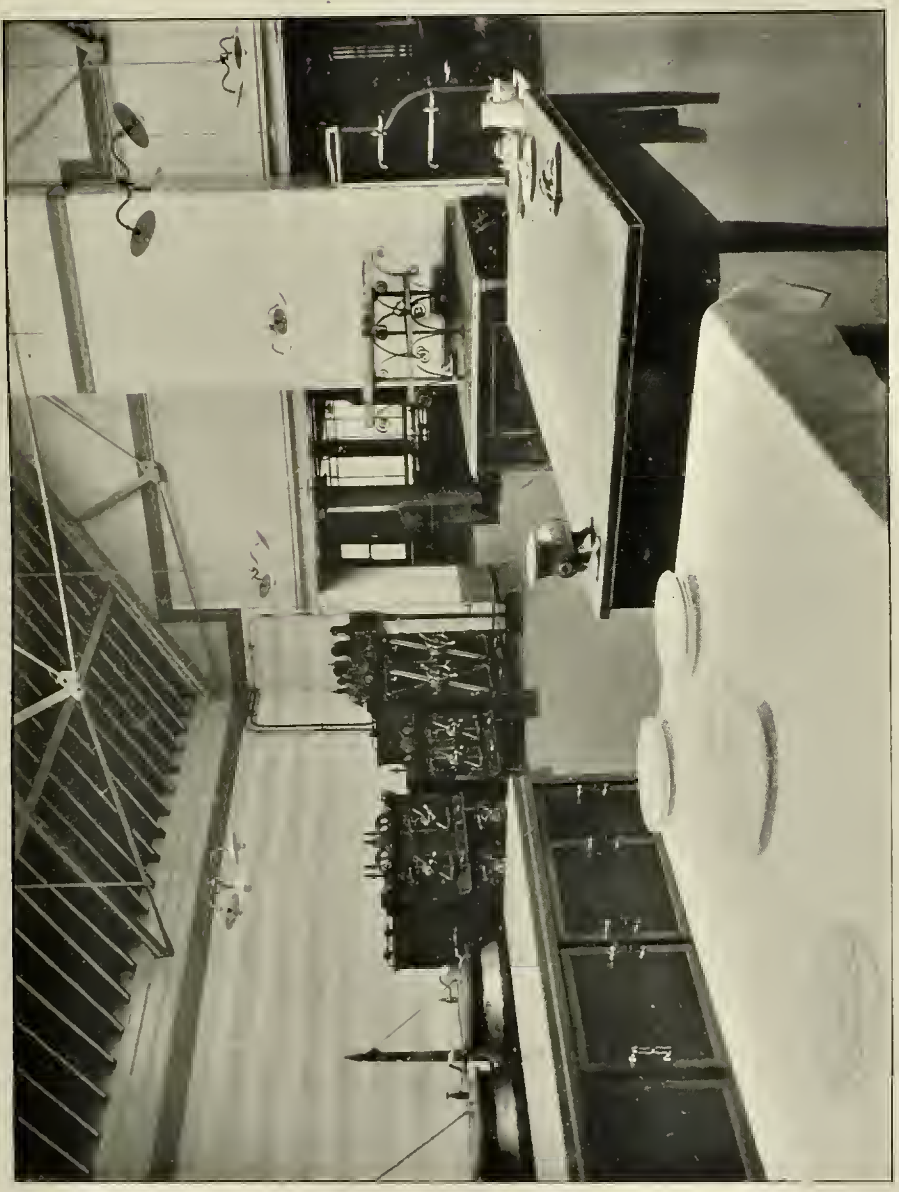


Plate 48—Kitchen (general view).

when the shape entails the placing of stoves, steam pans, and other fittings in inconvenient situations, the additional labour and time involved mean increase of staff without any compensating advantage. A kitchen, 46 feet long by 34 feet wide, with a scullery adjoining, 26 feet square, is large enough to serve for 700 or 800 persons.

The Cooking Apparatus.

The kitchen of an up-to-date Hospital will, of course, be fitted with the most modern ranges, stoves, boilers, and steamers, in order that the food may be thoroughly cooked with the least possible expenditure for fuel and the greatest economy of labour. There are so many excellent patterns of such fittings that to make any distinctions would be an invidious task. But in many kitchens the fittings, though excellent, are so badly arranged that much of their benefit is negatived. Ill-arranged fittings add so greatly to the difficulties in working, and to the cost of service, that some general principles may, with advantage, be indicated under this head (Plate 48).

Fittings.

All fittings should stand clear of the wall at least 18 inches. No pipes should be hung on the wall, the steam and water pipes being supported on iron standards, with sufficient space to allow a workman to pass behind them, should repairs at any time be necessary. All steam ovens, steam pans, tea infusers, in short every fitting requiring a steam supply (except, perhaps, the hot plate or carving table) should be arranged along one side of the kitchen, as this obviates multiplication of pipes. When a range of steam pans is thus placed the fitting of alternate hot-and-cold supply taps on a swivel effects a considerable saving in plumbing. Let us suppose that there are eight steam pans. A hot water tap between one and two can, with a swivel mechanism, supply both. A similar cold water tap between two and three supplies both. A hot water tap is then placed between three and four, and a cold water tap between four and five, and so on. The first and last pans have a cold water tap on their outer side. Thus eight pans have a supply of both hot and cold water with nine taps, instead ot the sixteen which would be required were each pan furnished with separate fixtures (Plate 49).

The Steam Pipes and Boilers.

All steam pipes should be flanged and not screwed at the joints, a decided advantage being thus secured in the event of leakage. Screw-down taps for hot and cold water are also to be preferred. Many firms specialise in boiler construction, and claim advantages for particular patterns of boilers. Tilting boilers are advantageous for emptying and cleaning purposes, and, although the gear may be cumbersome, it is very useful for large boilers. The objection to the spigot type is the difficulty of cleaning that form of outlet, but it can be quite satisfactorily overcome by having a screw on the outlet level large enough to admit a brush which can clean it thoroughly. Whatever variety of boiler is employed it should be jacketed only half-way up. Completely jacketed boilers are liable to cook the contents more rapidly at the top than at the bottom, and boiling over means probably the premature emptying of the pan. Those who have worked with a metal band on the boiler lid will appreciate a vulcanite handle on the side of the lid, as being not only handier but less dangerous in use.

Ranges.

Some Hospital authorities provide no coal range, but depend entirely on steam and gas cookers. This, of course, obviates the necessity of coal supply and the removal of ashes; but many cooks prefer the coal range, with roasting ovens for special purposes, such as the roasting of butcher's meat or the baking of puddings. Gas ovens will not so effectively "brown" fish or a pudding. But the former objections to gas cookers have now almost entirely disappeared, and if a reliable firm is chosen, and a first-class article secured, gas apparatus is found to be useful and economical.

Furnishings.

All furnishings, such as dressers and racks for pots and pans, should be on wheels, in order that they may be regularly drawn out from the wall to facilitate cleaning. This avoids any possibility of dirt or vermin collecting. The scullery adjoining the kitchen should be supplied, not only with the usual range of sinks for various purposes, such as cleaning vegetables, potatoes, pots, pans, &c., but, in addition, with a special sink or wash-hand basin for the use of the maids. This is a point frequently overlooked.

Trolleys.

Another advantage is the provision of trolleys to hold the trays for the fish and potato steamers. By this means the trays of potatoes, vegetables, &c., are wheeled to the cookers, representing an immense saving in labour. It will also be found advantageous to have a specially-designed wheeled box under the potato and vegetable sinks to act as a receptacle for all sand and dirt. The contents of the sink run into this box, in the centre of which is placed an upright, perforated tube. Through this the water flows into the soil pipe, the solids being retained in the bottom of the box, from which they can be removed. Those who have had experience of the choking of drains with mixtures of grease and sand will appreciate the utility of this device.

The Kitchen Floor.

The floor of the kitchen should be made of some non-absorbent material, the best being Ruabon tiles, which are comparatively cheap, look clean and tidy, and never become greasy or stained. There should be a slight fall on the floor to the side wall, where a shallow gutter should be formed in concrete. Walls should be covered with a hard glazed tile up to the roof. The lighting should be partly from the roof, and the roof light should be chiefly from the north.

Larders and Stores.

Adjoining the kitchen special larders should be provided for milk, vegetables, dripping, cold meats, bread, pastries, &c. There should also be a housekeeper's storeroom.

Dietician's Kitchen.

In recent years a great advance has been made in the training of nurses, and in no department is this more marked than in the systematic instruction in sick-room cookery now given in every well-organised training school. Diagram

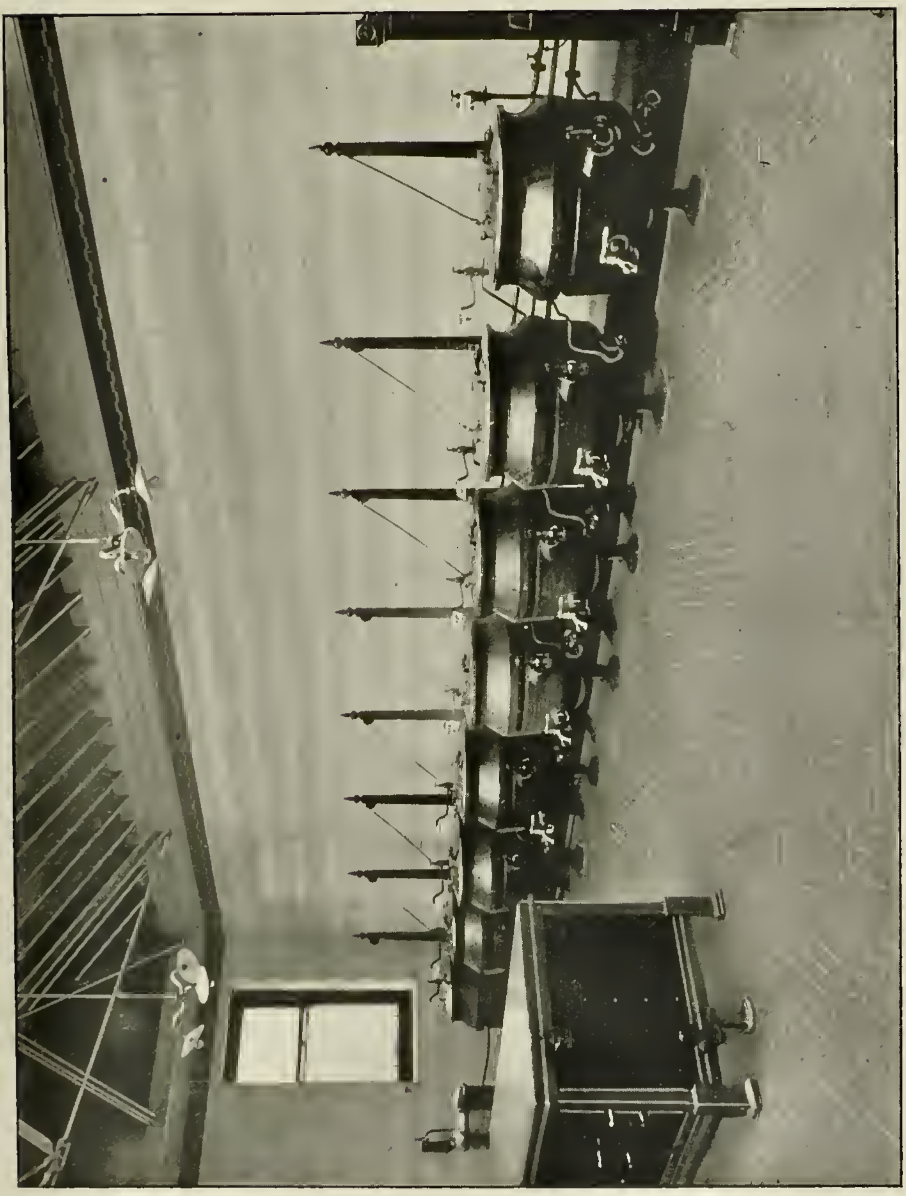


Plate 49—Kitchen (Boilers).

No. 7 shows the plan of the dietician's kitchen for the Western Infirmary, Glasgow. It will be observed that there is a grill placed round the table at which the nurses work, and in the centre of the space allotted to each nurse is a circular gas jet or Bunsen burner, which answers the same purpose as a gas stove. On this jet the nurses do all their cooking. Each pupil has her own drawer and cupboard containing all the necessary crockery and utensils. Each drawer contains a flour dredger, a salt castor, a pepper castor, an egg beater, a measuring pot (glass), knife and fork, a spatula, a tablespoon, two teaspoons, and a long-handled wooden spoon. In the cupboard below there is a dish pan for washing up, a frying pan, a saucepan, and a small boiling pan.

The dietician who gives instructions stands behind the table, and illustrates her remarks on the blackboard. In addition to the gas jets on the table there are two gas stoves, one in each corner, where ordinary cooking can be done, and the actual diet of a special patient prepared by the nurse herself. The nurses are, of course, taught to prepare special diets for individual patients. In the room shown on the diagram 20 nurses can be simultaneously instructed. At the side of this room are shown the cupboards required for keeping provisions, &c. Each cupboard is fitted up like a miniature store-room, and the nurse has at hand all that she requires to carry out her work.

Kitchen Management.

The management of the kitchen is carried out by a lady, who should have had a complete training in housekeeping and cookery, and be capable of supervising the whole of the domestic department. The lectures and demonstrations to nurses on sick-room cookery and household management are given in the dietician's kitchen. In addition to the supervising housekeeper the staff should consist of a head cook, a boiler maid, a maid for the coal range, and assistants. All the kitchen staff should have their quarters as near to the kitchen as possible. The housekeeper's private rooms should be in the same unit, so that all her staff are under her direct supervision.

CHAPTER IX.

THE LAUNDRY UNIT.

Size.

THE size of the laundry unit will depend on the size of the Hospital and on the number of articles to be dealt with each day. But in all cases the laundry should be a detached building adjoining the boiler-house and power-station, and, if possible, it should be placed on the lowest portion of the site in the rear of the main buildings. The various wash-houses comprised in the laundry should be arranged in a single-storey building. Provision should be made in the laundry unit for the housing of the staff.

Plan of Laundry.

The accompanying plan shows a Hospital laundry capable of dealing with 28,000 articles per week. With an additional washing machine and hydro-extractor, for which there is ample floor space, much more work could be accomplished. This laundry unit consists of two separate wash-houses, and in addition to the rooms set apart for general cleansing there is a room provided for the treatment of all articles which have come from skin or septic wards, or which for any other reason may require special treatment. This room should form part of every modern Hospital laundry, although the necessity for it is frequently overlooked in the design. It should have a separate entrance, and contain two large steeping tanks and a boiler. Suspicious articles are steeped in a disinfector, and are then boiled before being passed into the general wash-house.

General Wash-house.

There should be three wash-houses, two being for the linen of the patients and staff respectively, and one for septic linen. Adjoining these wash-houses are the drying rooms, arranged in pairs. Opening from the drying rooms is the mangling and ironing room, and as all the articles are thoroughly cleansed before reaching this stage of their treatment, this room is not subdivided into patients' department and staff department. With regard to the buildings themselves, the interior walls of all the rooms should be lined with glazed brick, the floors of the wash-houses should be of concrete, and the floors of the ironing room of some hard wood, such as maple or teak (Plates 50, 51, and 52).

Septic Wash-house.

The septic wash-house should contain four large steeping-tubs, one pressure washing machine, one jacketed boiler, and one hydro-extractor. The washing machine should be worked at a pressure of not less than 10 lbs. to the square inch. The entrance to the septic wash-house should be quite separate from the entrance to the other wash-houses, so as to lessen the risk of septic linen finding its way to the other wash-houses.

Method of Working Laundry.

In dealing with the interior fittings it may be well to follow the course of the linen from the time when it leaves the ward until its return. In this way we can obtain a comprehensive view of the complete cycle of laundry operations. In Chapter II. reference is made to the soiled linen bag (see illustrations, pages 34 and 35) used in each ward. The proper use of this bag obviates the repeated handling of soiled linen, as each article when placed in the bag is noted in the laundry book, and not again touched until it reaches the laundry. The bag is simply unhitched and conveyed to the laundry, where it is cleaned along with its contents.

Each ward should be provided with a special laundry book with perforated foils for every day of the week. These foils are detached and sent with the linen, and a counterfoil is retained by the nurse in charge. Every page of this laundry book contains a printed list of all the articles in use, and the nurse simply fills in the number of each. A specimen page of the laundry book is given on the next page.

Counterfoil.

LAUNDRY BOOK.

....19...

Ward No.

Ward.............. Ward..............

Date.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Correct.	Articles not Returned.	Saturday........19..	Friday..........19..
Sheets, ...									Sheets.	Sheets.
Draw Sheets, ...									Draw Sheets.	Draw Sheets.
Mattress Slips, ...									Mattress Slips.	Mattress Slips.
Bolster Slips, ...									Bolster Slips.	Bolster Slips.
Pillow Slips, ...									Pillow Slips.	Pillow Slips.
Grey Pillow Slips, &c., ...									Grey Pillow Slips, &c.	Grey Pillow Slips, &c.

NOTE.—To the counterfoil are attached slips for every day of the week. The number of articles sent to the laundry is noted on the slip for the day in question and also on the counterfoil. Then the slip is detached (this being facilitated by a perforated division) and sent to the laundry with the articles.

The Receiving Room.

At the entrance to the patients' wash-house is a receiving room for the soiled linen. This is fitted with open bins for classification of the different articles. At the entrance to the staff wash-house a similar receiving room is provided. The wash-house for patients' clothing is fitted on one side with steeping and washing tubs constructed of glazed fireclay, all of which discharge into an open gutter. This gutter is protected at its end by a grating. On the other side of the wash-house are three rotary washing machines and two centrifugal wringers. A gutter similar to that on the other side, and similarly protected, is placed under these machines, so that there is no possibility of drains being choked. The staff wash-house is smaller, but is equipped with machine and wringer on the same principle. One main shafting is thus sufficient to drive the machinery in both wash-houses. In both wash-houses a soap-and-soda dissolver is fitted up.

Drying Rooms.

The drying rooms are arranged on two flats. A hot-air chamber is placed on the basement at one side of the rooms, and electric fans on the opposite side. As the plan illustrates, either hot or cold air can be drawn through the rooms at will by the simple expedient of closing or opening the dampers placed over the air inlets. The lower rooms, where the temperature is higher when the hot air is in use, are utilised for the drying of linen articles ; the upper rooms, where the air is necessarily cooler, are employed for the treatment of woollen goods. The air which has passed over the clothes is carried off by flues in the roof. This method of arranging the drying rooms not only economises floor space, but is much more efficient than outdoor drying, which in a large town is never satisfactory. Atmospheric conditions, smoke, and uncertain weather render the outdoor method uncleanly and unreliable where thousands of articles are dealt with, and the time and labour involved in conveying to a bleaching green, where such exists, adds materially to the wages bill. Where there is a constant current of fresh air clothes are dried much more expeditiously by this method, and are left

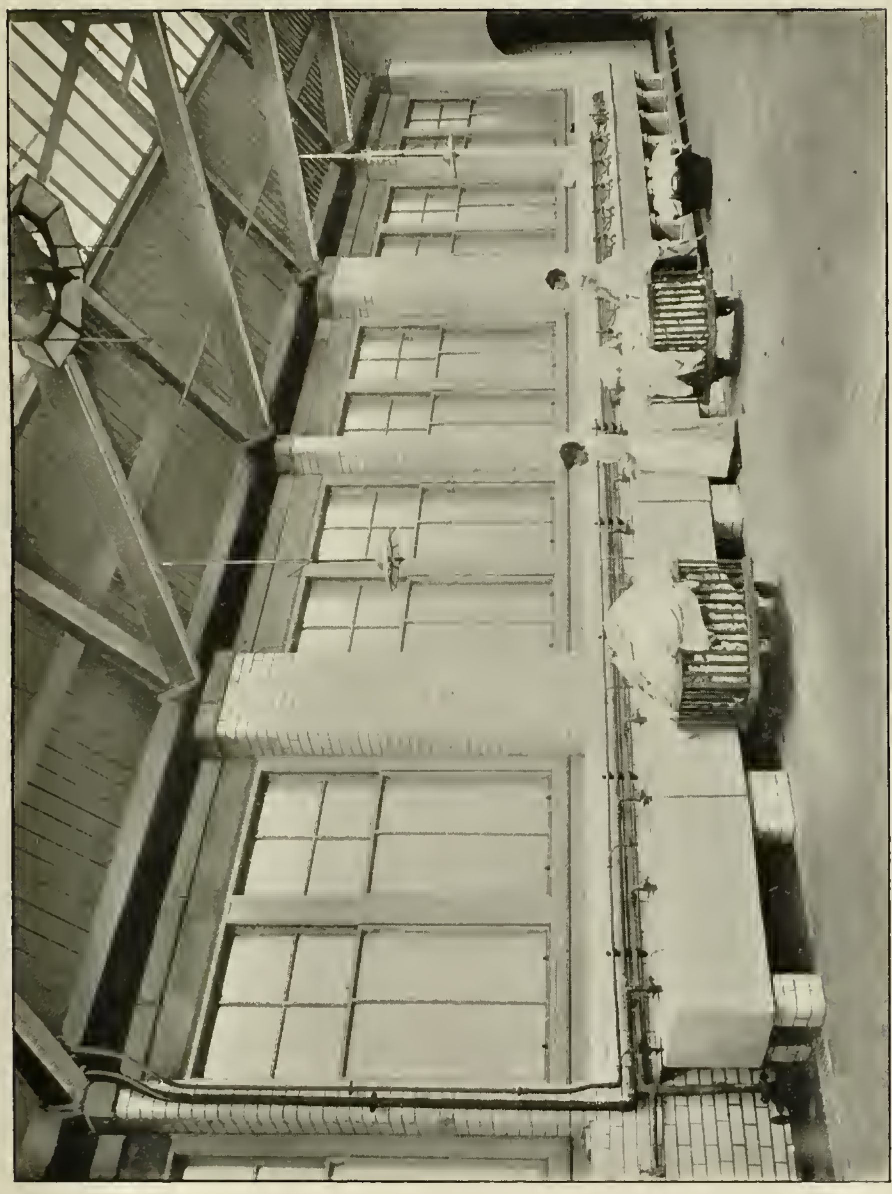


Plate 50—General Wash-House.

clean and sweet. The old method of using clothes-horses in a chamber of hot, but still, air was a tedious process and gave the clothes a musty smell.

Mangling and Ironing.

The linen which has passed through the washing and wringing machines and the drying rooms is then passed into the mangling and ironing room. The variety of mangles, ironers, collar and cuff machines, goffering machines, gas and electric irons, also the variety of washing and wringing machines, are so numerous that it is not desirable to single out for special reference any particular pattern. In a modern Hospital laundry the bulk of the work is done by machinery, although some laundresses prefer hand irons for special work, such as the dressing of shirts : provision must therefore be made for the heating of hand irons.

Economy in Hospital Dressings.

Great economy can be effected by washing and sterilising gauze and bandages that have already been in use.

Dr. Washburn, Superintendent of the Massachusetts General Hospital, in a paper which he read before the National Association of Hospital Superintendents, described the method employed in his Hospital. Similar arrangements have been made in the Western Infirmary, Glasgow.

All gauze, &c., from ward dressings and operating rooms is collected in paper bags and taken to a special room in the laundry. It is here transferred from the paper bags to open-work bags made of cord, the bags being only half filled. The gauze is kept in those bags throughout the rest of the process of washing and laundry sterilisation. It is put to soak over night in cold water which is changed several times. The following morning it is put into an iron washer capable of resisting steam pressure up to 10 lbs. It is then washed in cold water until the water runs off perfectly clear. The gauze is then washed with warm water, soap, and soda. After this washing it is rinsed in hot water. After the rinsing sufficient hot water is run into the iron washer to cover the bags of gauze as they lie at the bottom of the washer. Steam is again turned on to a pressure of

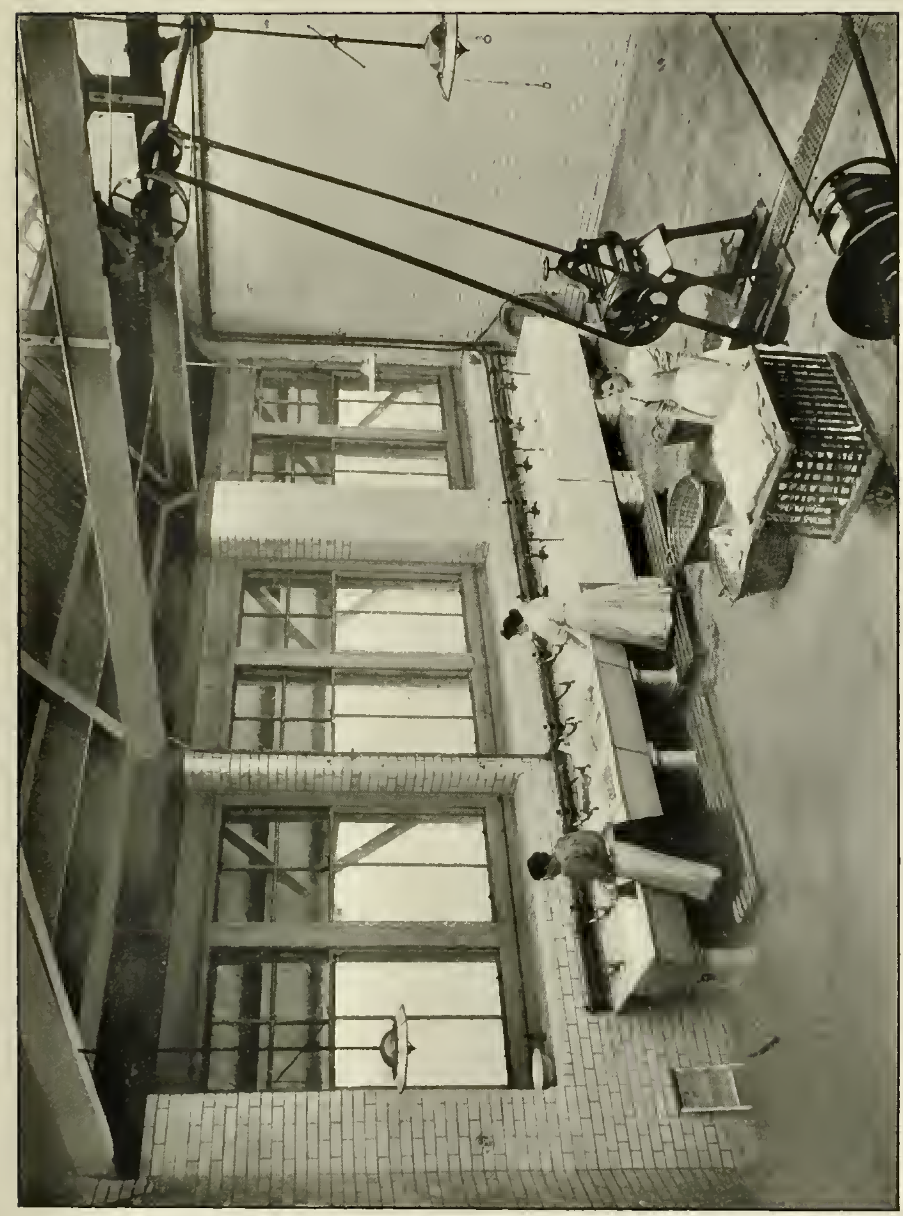


Plate 51—Staff Wash-House.

10 lbs. This pressure is maintained for half an hour. During this process the washer is moving to and fro, which continually agitates the gauze and presents all parts of it to the action of the water and steam.

The gauze is then put in the hydro-extractor and, when dry, is carefully overhauled. It is untangled and straightened, and any piece of gauze which is not perfectly clean is thrown away. The gauze is then again handled by nurses or maids, when it is cut and placed in packages for the last sterilisation. The gauze is very carefully examined before being sent for the final sterilisation, which is done by the operating theatre nurse.

Washed gauze is softer and more absorbent than new gauze. Repeated tests conducted in the Pathological Laboratory have shown the safety of the above process.

Staff.

For a laundry similar to that illustrated in the accompanying design, and turning out on an average, say, 25,000 articles per week, the staff should consist of a superintendent and eighteen female workers. The staff should be housed and fed in the unit, and, in addition to board and lodging, provided with indoor uniform and wages ranging from £12 to £20 per annum, according to the nature of their work and their experience. The laundry superintendent should be a lady who has had experience of laundry work and the management of servants. In some Hospitals the supervision is left to a nurse, while in others members of the nursing staff undertake this duty in turn. This method of supervision is never satisfactory. The laundry department is much too important for amateur management, and should never be under the control of one who has not been thoroughly trained for the work. A competent manageress, with an adequate salary and comfortable rooms within the unit, will be found in the end to be an economy. An excellent arrangement exists in some Hospitals whereby members of the senior nursing staff act in turn as understudy to the laundry superintendent. In this way they acquire a knowledge of laundry work under competent guidance which may prove invaluable to them should they become matrons of small Hospitals.

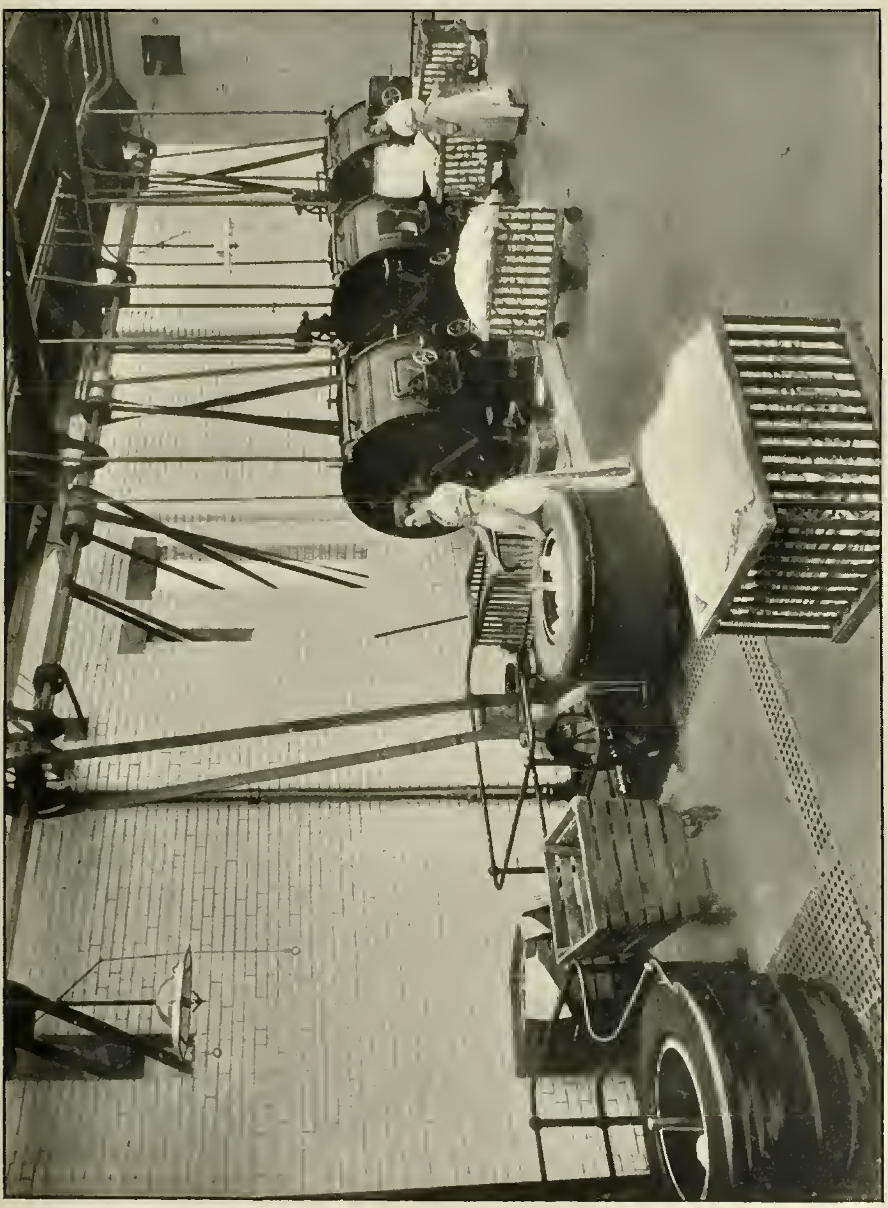


Plate 52—Washing Machines and Hydro-Extractors.

Cost of Materials.

Reference has been made to an average of 25,000 articles per week. This works out, roughly, at 16,000 articles for ward and patients' use, and 7000 articles for nurses and officials. The cost of materials, such as soap, soda, &c., for this number of articles averages £2 14s. 6d. per week. The cost of water varies so much in different districts that no average can be taken. In some cases the local authorities allow a certain quantity of water free of charge to charitable institutions.

CHAPTER X.

PROVISION FOR NERVOUS DISEASES AND INCIPIENT MENTAL DISEASES.

THERE is one branch of clinical Hospital work which up till now has received little general attention, namely, the provision of suitable accommodation for the treatment of patients suffering from slight or incipient mental disorders. As far back as 1893 a clinic was opened by Dr. Rayner in the out-patient department of St. Thomas' Hospital, London. In the autumn of the same year a department was established in the Royal Hospital, Sheffield, under Dr. Crochley Clapham, and two years ago the Managers of the Western Infirmary of Glasgow appointed Dr. L. R. Oswald as Consulting Physician for Mental Diseases, and gave facilities in their out-patient department for carrying on similar work.

The results of what may at first have been regarded as an experiment have proved most satisfactory, and no large teaching school is complete, either from a curative or educational point of view, without special provision for the treatment of such cases.

There are many advantages to be gained by the establishment of such a department in connection with a general Hospital. Some of these have been pointed out by Dr. Rayner, Dr. Clapham, Dr. Savage, and others, but the main advantages to be derived from such a department are:

To Associate Mental and Physical Diseases in the Public Mind.

This can best be done by the treatment in the same institution of incipient mental disorders and patients suffering from general medical ailments. There is undoubtedly a prejudice on the part of the public against seeking advice at an asylum or institution set apart for the treatment of insanity, and as a result there is often delay in recognition of the mental defect and a concealment of symptoms, while expert advice is not sought until the condition is well advanced, and in some cases beyond hope of recovery. Where such a department is established it might be called "A Department for the Treatment of Nervous and Mental Disorder." On no account should it be called "A Department for the Treatment of Insanity." The latter term is not only distasteful to the patient and his relatives, but there is a popular idea that, if a patient has once been under treatment in an asylum, he can no longer be trusted to carry on his business or his profession as before. It is little wonder, therefore, that—among the working classes particularly—the fear of being immediately sent to an asylum prevents many patients from seeking expert advice in the early stages of their malady, when they are amenable to treatment. Dr. Henry Rayner, in a letter on the subject, writes as follows:—"What strikes me with wonder is the ease with which arrest can be effected in these early stages," and Dr. Clapham states—"I can quite bear out this statement."

To arrest Developing Insanity.

The earlier the mental disorder is recognised and treated the more likely is the condition to be arrested. The reports of most asylums indicate that, in a large majority of the cases, the disorder has existed for several months previous to admission. It is well known that mental disorder is very frequently complicated with other causes, and that the removal of some exciting cause will often arrest the development of the disorder. By proper medical treatment the patient's mental equilibrium may be restored and a condition of chronic mental disease averted.

To give Clinical Instruction to Students.

It is much more important for the young medical man and more valuable for the family practitioner to be acquainted with the symptoms present in the incipient stages of mental disorder than to have a knowledge of the more fully-developed forms of insanity found in asylums. Where a special clinic is provided in the out-patient department of a general Hospital for the treatment of incipient mental cases, the patient can be examined by various experts, and the student has the further advantage of following the results of these detailed examinations. For instance, the patient may be thoroughly overhauled by a physician, the eyes examined by an ophthalmic surgeon, the ears examined by an aurist, and the female patients examined by a gynæcologist. It may then be found that by careful attention to, and treatment of, some physical defect or ailment the patient may recover mental equilibrium within a very short time, clearly demonstrating to the student that the disturbed mental condition was secondary to some physical disease quite amenable to medical treatment.

Such a Department affords Medical Practitioners among the Poor and Working Classes an opportunity of consulting a Specialist on the subject.

Medical men can with confidence send their patients to this department for diagnosis without injuring their reputation. It can readily be imagined that a practitioner might hesitate to recommend the relatives of a patient to take the patient to an asylum if he himself was in doubt whether the symptoms were really mental or due to some other disease. By sending the patient to this special department of a general Hospital he has the advantage of getting an expert opinion. Further, the incipient lunatic will come voluntarily to a Hospital when he could not be induced to go to an asylum; relatives or friends will have no hesitation in accompanying the patient to a Hospital, when they would use every means in their power to keep him out of an asylum.

Action of Charitable Agencies.

A number of such cases come under the supervision of different charitable bodies, such as the Charity Organisation Society, and the authorities are in doubt as to what should be done with the applicants. The cases are occasionally bordering on insanity, but the cause of their mental depression may be due entirely to lack of nourishment, or to some physical disease resulting in inanition, and the advice of a mental expert associated with a general Hospital is then of the greatest value.

Erroneous Opinions as to Insanity.

The establishment of such a department in connection with a general Hospital will do more than anything else to remove the erroneous opinions which are popularly held regarding cases of insanity. The public will gradually come to view insanity as a disease, and to recognise that the less harmless and incipient cases are isolated and made self-conscious the more likely are such cases to recover.

Hospital Wards for Incipient Mental Cases.

Some authorities consider that, in addition to the clinic in the out-patient department, wards should be provided in a general Hospital for the treatment of patients not suitable for an out-patient department. In one of the poor law institutions of Glasgow such wards have been in existence for several years. It is just possible that at first one of the principal functions of these wards was to enable the authorities to avoid sending to an asylum cases likely to be cured within a very short period, as it was found that employers had great hesitancy in taking back to their service either males or females who had been confined in an asylum, and that such persons then became chargeable to the rates. From an economic point of view, if from no other, the department for incipient mental cases has proved to be of great utility. Accordingly it was decided by the poor law authorities that provision should be made for all cases of mental disease in which there seemed a likelihood of early cure. If, at the end of six weeks, the patients were not cured, or did not show marked symptoms of improvement, they were duly certified and removed to a lunatic asylum ; but experience has proved that a considerable proportion of the cases admitted have been discharged cured within six weeks. Those wards are now known as "observation wards," and all doubtful cases are admitted to them in the first instance instead of being sent direct to a lunatic asylum. It is not generally recognised by the public that a lunatic asylum is really a special Hospital for the treatment of mental diseases, and so long as the study and treatment of mental diseases are confined entirely to asylums, so long will the public regard asylums for the insane, or, as they should be called, "Hospitals for Mental Diseases," as existing, not so much for the cure of the patient, as for the protection of the lieges by the incarceration of all persons with suicidal or homicidal tendencies. Statistics show, however, that only a very small percentage of the patients in asylums have such tendencies, and in modern asylums one finds that the patients are allowed much more liberty than what was supposed to be possible even a few years ago. But, until lunatic asylums are regarded in a proper light by the general public, and until the unreasoning distrust entertained of those who have been treated in an asylum has disappeared, it is very desirable that persons suffering from the effects of mental strain, caused perhaps by business worry or domestic anxieties, should be able, without recourse to a lunatic asylum, to obtain skilled professional advice and treatment such as can be afforded only in connection with a general Hospital.

Regulation of Observation Wards.

The economic idea originally attached to "observation wards" in Scottish poor law administration has now entirely disappeared, and such wards are administered exclusively in the interests of the patients. The Commissioners of Lunacy and the Local Government Board for Scotland, in jointly issuing the following memorandum regulating the practice of such wards when attached to institutions under their control, have, as it were, set the seal of official approval upon the work:—

Memorandum as to Observation Wards issued by the Local Government Board for Scotland.

"The Board feel that a wide discretion must be left to the medical officers in charge of these wards, and to the medical officers who sign the certificate of admission. No doubt there will sometimes be diversity of opinion as to whether a patient sent to an observation ward should not more properly have been sent to an asylum as a certified lunatic. In such cases the considerations to be kept chiefly in mind are the immediate cause and the probable duration of the mental disturbance. As a general rule, it is not intended that patients should be kept in an observation ward longer than six weeks. It is difficult to limit or to specify exactly the type of case for which observation wards are suitable, but the following may be mentioned :—

"(*a*) Where the mental symptoms are a sequel to, or an accompaniment of, diseases that, in ordinary circumstances, terminate within a definite time. The point specially to be kept in view here is the likelihood of the speedy disappearance of the mental disturbance.

"(*b*) Where, although the mental symptoms would seem to indicate lunacy, the medical officer is clearly of opinion that such symptoms are likely to be of short duration.

"(*c*) Where the patient's mental state gives rise to apprehension, but where the symptoms are not sufficiently marked to enable the certifying physician to affirm either sanity or insanity.

"(*d*) Where the mental disorder is associated with alcoholic abuse.

"(*e*) Senile cases where there are temporary symptoms of mental derangement which make it undesirable that the patients should be treated in a general hospital ward.

"(*f*) The presence of the following conditions should be regarded as contra-indicating suitability for such wards :—

"(1) Homicidal tendencies.
"(2) Dangerous violence.
"(3) Acute and persistent suicidal tendencies.
"(4) Long-established insanity or known existence of chronic delusions."

Formation of Mental Wards.

It seems quite probable that in the near future mental wards will form an integral part of at least one Hospital in every district, and as special provision must be made in preparing the plans I propose briefly to indicate the minimum requirements of such wards.

Situation.

As cheerful surroundings are an essential factor in the treatment of mental cases, the wards should be placed in such a position that the outlook and surroundings are as pleasant as the situation of the Hospital permits. The wards should have the maximum of light and air. If possible, the windows should overlook a garden or lawn. With a view to eliminating the possibility of a patient throwing himself from a window, it is desirable that mental patients should occupy only the ground floor. Where practicable, the block which they occupy should be detached from the main Hospital buildings.

Construction.

No ward should be constructed to hold more than twelve beds. The materials to be used and the methods of finishing will be the same as in the medical unit described in Chapter II. In dealing with a mental case, however, large general wards are to be avoided, as some mental cases incline to be restless, and a number of restless patients in one ward would, by disturbing nervous patients, tend to defeat the object of the wards. For the same reason a relatively large number of wards to contain only one bed should be provided. These single-bedded wards would serve the double function of receiving patients to whom it was desired to give absolute rest and quiet, and patients who were so noisy or restless as to be unsuitable for the general wards. Probably single-bedded rooms should be provided in the proportion of one for every six patients. A large day room, or convalescent ward, should also be provided in the observation unit. As much liberty as possible should be afforded to patients whose convalescence is advanced, as any consciousness of restraint would militate against the good effects of the treatment. The day rooms should be plentifully supplied with literature and with material for games, such as chess, draughts, &c., and patients should be encouraged to do a little ward work.

The observation unit, like the other units described, should contain rooms for the resident medical officer, a room for the visiting medical officer, a duty room for nurses, a ward kitchen, linen store, &c. A bathroom, water-closet, and lavatory (with basin and slop sink) should be provided for every large ward, but these should be similar to the modern asylum units, with open partitions and no bolts on the inside of doors. This provision should be so arranged as to be convenient for patients in the single rooms. The nursing and medical staff would, of course, have separate lavatory and water-closet accommodation as in the medical unit. Special care should be taken that the patients are absolutely unable to turn on the water in any of the baths. The handle for taps should be always in charge of the nurse, and when not attached to her person should be under lock and key. All fittings, such as pendant brackets, pipes, &c., that would make it possible for a patient to commit suicide by hanging should be carefully eliminated. Not less than 2000 cubic feet of air space should be allowed for each patient in the dormitories. The day room space should be liberal.

Nursing.

The ratio of nurses to patients in the medical unit of a general Hospital (1 to 3) will be found quite suitable for mental cases. Probably a smaller proportion, say, 1 to 4, would suffice, as, apart from supervision, the majority of mental cases do not require such exacting attention as medical or surgical patients. On the other hand, it may happen that a single patient may require the entire services of a nurse for night and a nurse for day duty, and for this reason the arrangements should be capable of a good deal of elasticity. In the male wards it should always be possible to obtain the immediate services of at least one male official in the event of a patient becoming violent.

Registers.

Specimen pages of the Register required by the Scottish Local Government Board for such wards are appended. As regards the register of restraints, it may be pointed out that the chief use of this register is that it acts as a check upon the methods of treatment adopted. In no case should a patient be put under restraint without the written authority of the visiting or Resident Medical Officer. It may be pointed out that, in well-administered asylums, mechanical restraint is now practically unknown.

FORMS OF REGISTERS REQUIRED IN OBSERVATION WARDS BY THE LOCAL GOVERNMENT BOARD FOR SCOTLAND.

1.—REGISTER OF ADMISSIONS AND DISCHARGES.

Number of Case.	Name.	Age.	Sex.	Occupation.	Address.	Where Admitted from.	Nature of Mental Disorder.	Day and Hour of Admission.	Result of Treatment.	Where Discharged to.	Day and Hour of Discharge,

2.—REGISTER OF CASES PUT UNDER RESTRAINT OR SECLUSION.

No. of Case in Admission Register.	Name.	Nature of Restraint or Seclusion.	Duration.	
			Beginning: Day and Hour.	End: Day and Hour

3.—REGISTER OF ACCIDENTS.

No. of Case in Admission Register.	Name.	Date of Accident.	Short Account of Accident, naming Officials or other Persons who witnessed it.

CHAPTER XI.

HEATING.

THE low-pressure hot-water system is undoubtedly one of the most suitable methods of heating Hospitals and other similar buildings. Hot water, however, when dependent for movement on gravity alone has a slow circulation, and in extensive buildings the friction in long runs of piping is so great as seriously to affect its efficiency. It is best, therefore, to use a hot-water system having an accelerated circulation, such as is possessed by the Reck Patent Circulator system, which takes its name from its inventor, a Danish engineer. This system has been in use on the Continent for over a dozen years, and during the last five years has been installed in a large number of buildings in this country.

In the Reck system a circulator is used which causes a strong and rapid circulation of the water throughout every part of any apparatus to which it may be fitted, so that by its use all the recognised benefits of hot-water heating may be obtained without any of the disadvantages. As generally arranged, a heating apparatus on this system is fitted with flow and return pipes, having connections to the various radiators, in much the same manner as an ordinary gravity system. The water is partially heated by low-pressure steam in a " reheater " similar to a calorifier ; to this " reheater " the flow and return pipes are connected. Before the flow pipe starts on its course through the building to distribute the heat to the radiators it is taken up to a point above the highest radiator and connected to an expansion tank.

The patent circulator is fitted on the flow pipe several feet below the expansion tank. Through it low-pressure steam is introduced, and this causes the water in the pipe between the circulator and the expansion tank to boil, thereby reducing the specific gravity of the ascending column of water. The connection of the flow pipe to the expansion tank is made in such a manner that the steam injected by the circulator is separated from the water and discharged into the space above the water line in the expansion tank. The flow pipe descending from the expansion tank on its way to supply the radiators contains hot water only, entirely free from steam. A condenser is fitted on the ascending flow pipe just below the circulator, and the steam discharged above the water line in the expansion tank is condensed by the partially heated water coming from the "re-heater."

It will readily be seen that between the contents of the portion of the ascending flow pipe which contains water mixed with steam, and those of an equal length of the descending pipe which contains no steam, there will be a considerable difference in weight, and an over-balancing effect is obtained which is sufficient to cause a circulation about four times as fast as that in an ordinary gravity system.

This rapid circulation renders practicable the use of supply piping of much smaller bore than is in general use, while at the same time it secures the fullest efficiency of the radiators no matter how unfavourably they are placed either as regards distance from the heater or lack of height over it. Main pipes may be used up to a length of 500 feet, and radiators heat well even if placed below the return pipe. The high efficiency makes it possible to use radiators from 10 per cent. to 15 per cent. smaller than is usual for hot water.

By reason of the reduced radiators and the small supply pipes, the amount of water in the system is about 40 per cent. less than in a gravity system, and the rapid circulation of this small body of water enables the work of heating up or cooling to be effected quickly. It will generally be found that in ordinary hot-water heating without a circulator too much time is required to get the temperature of the water sufficiently high to heat the wards and rooms, and that it often happens that when once the desired temperature in the rooms has been reached the effect of the heat stored in the large volume of water in the pipes is to raise the temperature beyond the desired degree. The circulator, however, requires little time for getting up the heating power of the apparatus, and, on the whole, adapts itself quickly to any kind of circumstances. For this reason the Reck system, wherever used, will be found to be a great convenience, not only on

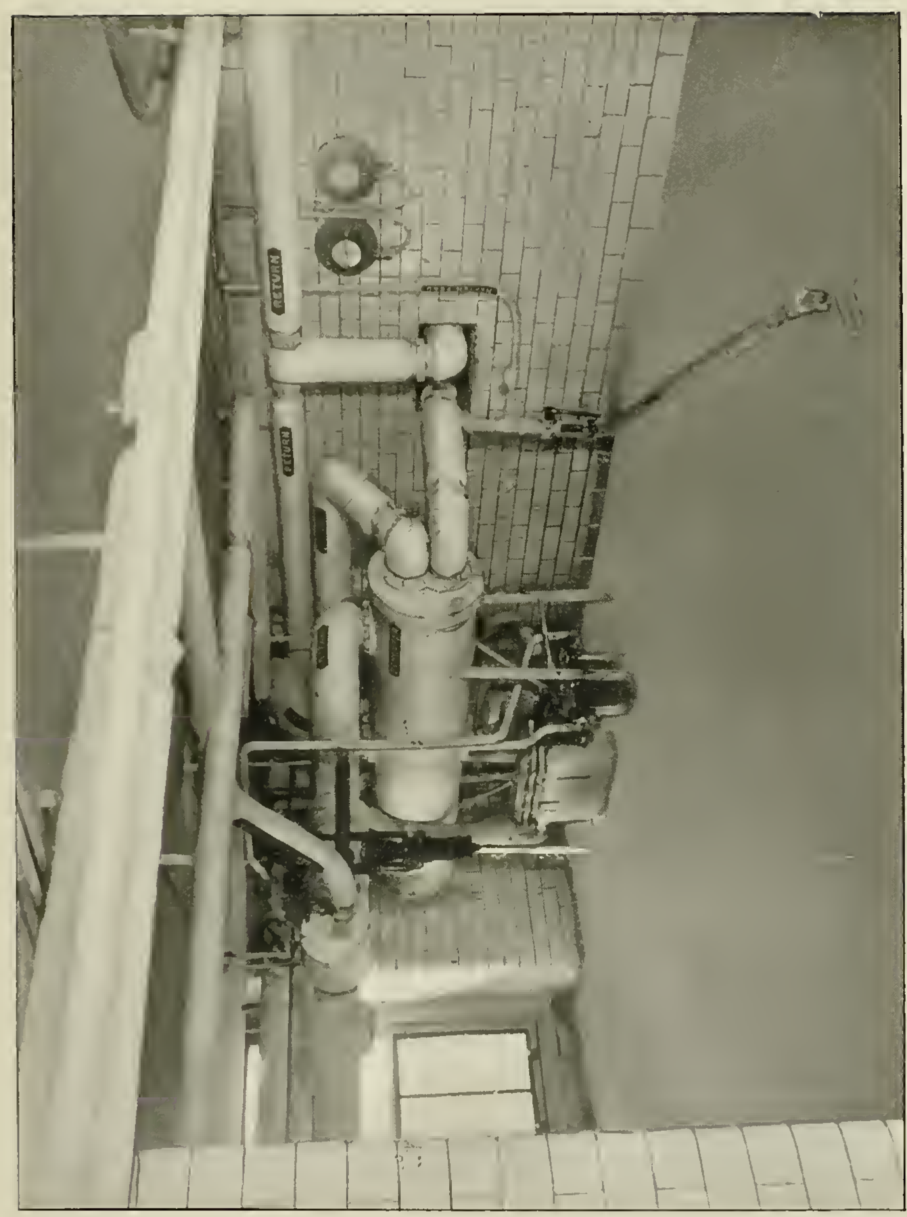


Plate 53—Reck Heating System—Re-heater in Basement.

account of its great heating power during periods of severe cold, but even in ordinary winter weather, when a reduced amount of heat is required during the night, but strong and rapid heat in the morning, and again very little heat later on in the day when once all the rooms are well heated.

The Reck system will be found to be economical as regards fuel consumption, as there is no waste or loss. The steam which accelerates the circulation at the same time heats the water both in the circulator and in the condenser.

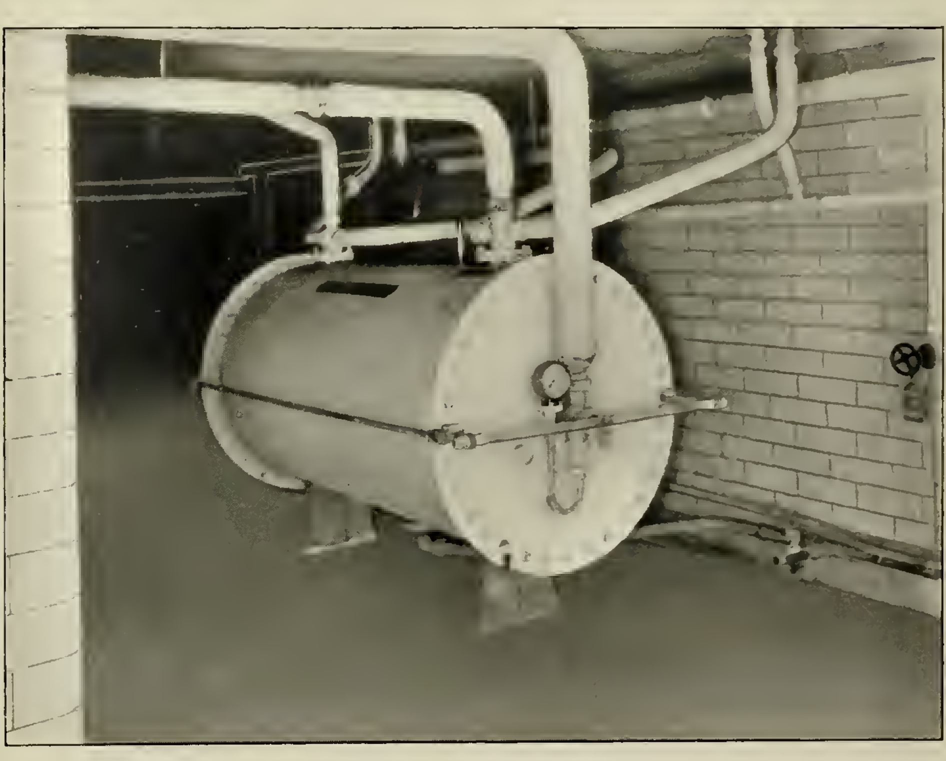


Plate 54—Reck Heating System—Heating Chamber in Basement.

The rapidity with which the system adapts itself to varying conditions prevents any waste of heat during those hours when it is not required, and, owing to the fact that mains and pipes, with diameters as small as those used in the circulator system, lose very little heat when placed in attics or basements where no heat is required, the consumption of fuel is reduced to a minimum.

The steam required may be taken from high-pressure boilers and reduced to the low pressure required, which varies from 3 to 6 lbs., or, if the Hospital has a number of pavilions, a low-pressure boiler may be installed in each. It depends

Plate 55—Nurses' Dining Room.

altogether on local conditions which arrangement is the more suitable.

The hot-water piping is usually designed to give a mean temperature in the radiators of 185 degrees Fahrenheit when the maximum work is required from the apparatus, and central regulators are fixed, by which the temperature of the water may be controlled at one point, and any temperature between 100 and 185 degrees may be obtained.

Besides the central regulators each radiator may be controlled in the usual manner by valves on the inlet and outlet connections. Sectional regulators may also be fixed, so that the temperature in radiators at different sides of a building may be varied to suit the prevailing winds, or other conditions affecting the temperature of the rooms.

The cost of installing the Reck system in moderate or large-sized buildings will be found to be less than the cost of ordinary hot water, and the cost of upkeep is about 10 per cent. less.

Almost any system of ventilation can be combined with the Reck system.

CHAPTER XII.

NURSES' HOME.

Bedrooms.

In order that a high type of woman may be attracted to the nursing profession it is necessary that a well-equipped building should be erected beside the Hospital for the accommodation of the nursing staff. This nurses' residence or home should be separate from the Hospital proper, but may be connected with it by a conservatory. Each nurse should have a separate bedroom; this bedroom should have a capacity of about 1200 cubic feet of air space and a floor measuring, say, 10 × 12 feet. In some of the more modern Hospitals a large closet is built in the room to take the place of an ordinary wardrobe. This closet measures 3 × 4 feet, and is provided with pegs, with a shelf over the pegs where hat boxes, &c., may be kept. There is also a small rack near the floor for boots and shoes. It is necessary that this closet should be ventilated by means of a fanlight over the door; in some cases a mirror has been placed in the door. The furniture of the room should be of the simplest design. In addition to a bedstead with spring and hair mattress, a lounge or easy chair, a small chair, a wash-hand basin and stand, and a mirror should be provided. The room should not have a carpet, but a good-sized rug should be placed in front of the bed. Each room should have a radiator, which may be conveniently placed in the bossing of the window with cold air entering directly on it. This air inlet should be provided with a regulating valve so that the quantity of cold air admitted may be under the control of the nurse. Each radiator should have a valve to regulate the amount of heat. In some cases a fireplace is introduced for the purpose of ventilation, but an extraction ventilator leading to the roof of the building is found more satisfactory. Bathroom and lavatory accommodation should be provided in the proportion of, say, one bath to each six or eight bedrooms, one wash-hand basin with hot and cold water for every four bedrooms, and one w.c. for every ten bedrooms. Near the entrance to the nurses' residence an elevator or lift should be placed which can be worked on the push-button principle without an attendant. Any one wishing to use the lift pushes the button and the elevator comes to the required floor. The nurse enters the lift and closes the door; by pushing the button for the number of the floor desired (up or down as the case may be), the elevator stops when it reaches the desired floor.

Plate 56—Ward Sister's Private Sitting Room.

Sick Room.

In addition to the ordinary bedroom accommodation, a sick room should be provided large enough to contain several beds, and adjoining it should be a kitchen with a gas stove and convenient lavatory accommodation.

Box Room.

A large box room should be provided in the basement, and the racks on which the trunks are placed should not be higher than can easily be reached by the nurse. This room should be well heated and ventilated so that nothing in the trunks may get destroyed.

Plate 57—Ward Sister's Private Sitting Room.

Public Rooms.

The public rooms should be placed in such a position that when they are in use night nurses will not be disturbed. It is well that these public rooms should be outwith both the Hospital and the nurses' home. If the latter arrangement is not practicable, they should be placed as far from the bedrooms as possible. In addition to a large general drawing-room for nurses and a sitting room for sisters, there should be a library or writing room where nurses can read or study. Adjoining the nurses' entrance a small room should be provided for nurses' visitors; and, convenient to the lift, a large sewing or linen room should be provided so that the linen for the nurses' home can be kept entirely separate from that for the Hospital.

Lecture Room.

In addition to the accommodation described, a lecture room should be provided in the nurses' residence, containing a blackboard, a cupboard for a skeleton, and a cupboard for diagrams. The chairs in this room should be specially designed, having a right arm 6 inches broad, so that a nurse may rest her note book on it and take notes of the lecture or demonstration.

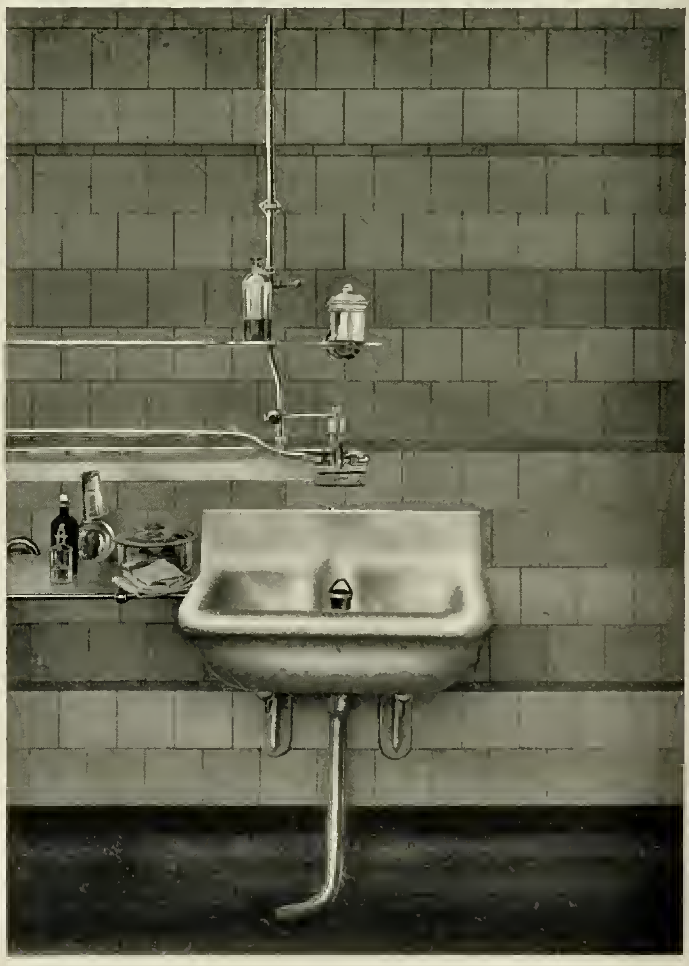


Plate 58—Wash-hand Basin for Operating Room.

Dining Arrangements.

In order that the nursing staff should be as efficient as possible, their food should not only be ample and varied, but should be served in an attractive dining-room. Nurses should dine at small tables suitable for not more than six and preferably only for four. Adjoining the dining-room should be placed a service pantry communicating with the kitchen department by means of a push-button food elevator, and adjoining this servery a well-ventilated room should be supplied for the use of the maids in attendance on this department. This latter room is often overlooked in the preparation of plans, and in many Hospitals one finds the maids sitting at food in the service pantry, an arrangement which is very undesirable and not conducive either to efficiency or good discipline.

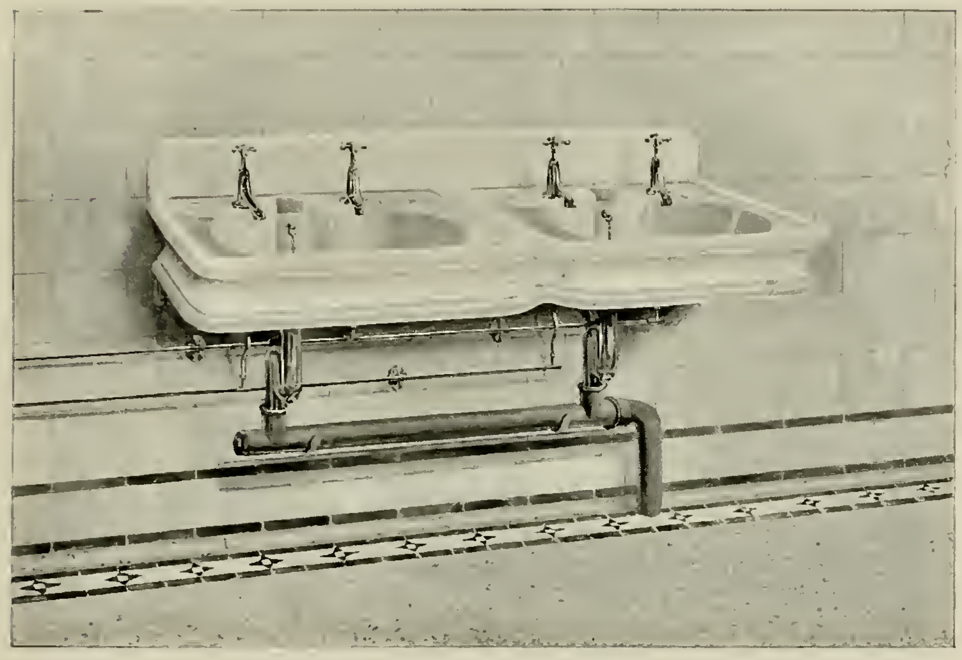


Plate 59—Lavatory Basins.

The service room should be supplied with two hot plates, also a gas stove and bread toaster. Adjoining it should be a larder for milk and cold meats, with a small store-room for the day's supplies. Special provision should be made for the keeping of milk ; if possible, this room should have a northern exposure, and be thoroughly ventilated. In all recent nurses' residences an installation for cleaning on the vacuum principle has been installed. In some Hospitals the dietician's kitchen is placed in the nurses' residence, but it is found more convenient to have this room in the Hospital. A suitable site would be in the vicinity of the general kitchen. This room has already been described and is illustrated on Plan No. 7.

Training of Nurses.

No training school can be successfully conducted unless it has as its head a lady with those personal qualities that ensure respect and loyal service from the staff and the pupils. The Matron or Superintendent of Nurses must be fully trained, and should have passed through the subordinate posts of ward sister, assistant matron, &c. In selecting a Matron for a large Hospital it is always an advantage to secure the services of a lady who has been in charge of a smaller Hospital of, say, one hundred beds.

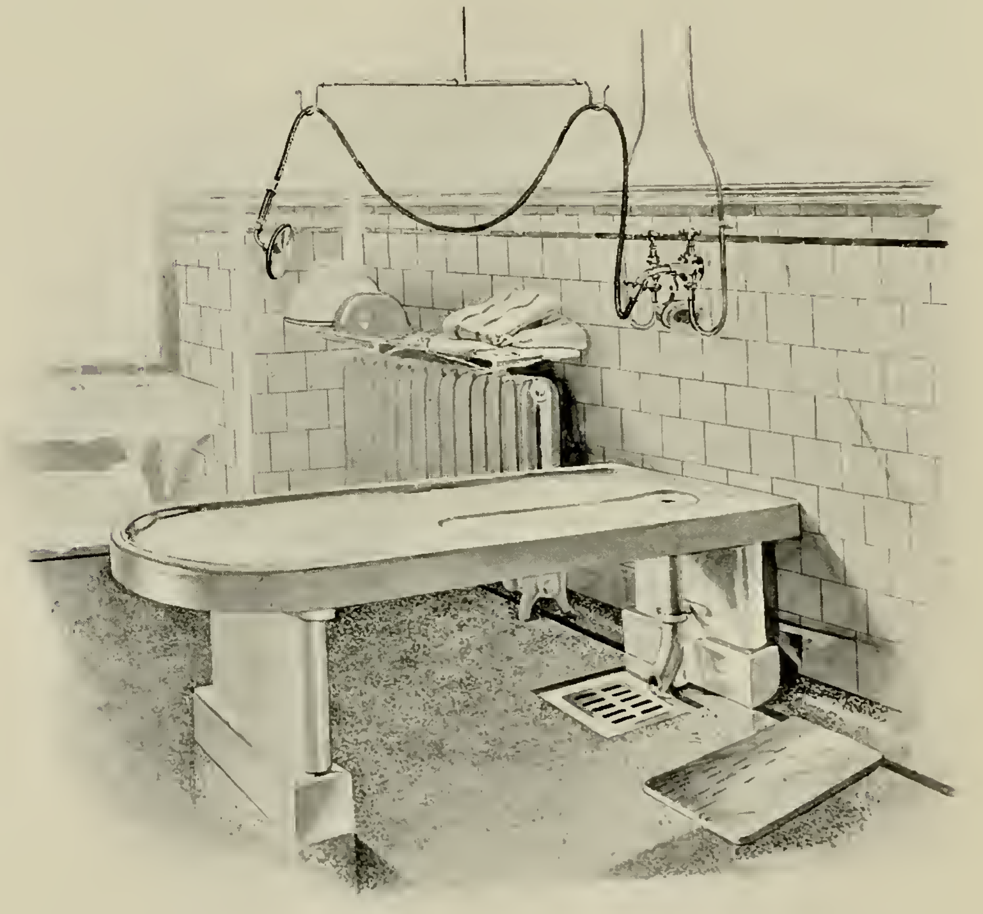


Plate 60—Examination and Cleaning Slab.

Nursing is the work of educated women, and the healthy rivalry which exists among the various training schools contributes in a marked degree in keeping up the standard of efficiency. The best candidates will no doubt select the training school that will give them the best opportunity of ultimately securing the highest posts in the nursing profession. In selecting a training school it should not be taken for granted that the size of the Hospital is the only factor that entitles a training school to take front rank; much excellent training is given in moderately-sized Hospitals, and in some larger institutions the attention given to the training of nurses is not excessive.

Plate 61—Flush Sink.

In all Hospitals the first consideration is the care of the patient, but this can be secured without sacrificing the training of the nurses, and in many county and provincial Hospitals the training is in no respect inferior to that given in some of the larger training schools.

The attempt to level down the training of nurses to a common standard strikes at the root of all progress, and in order to safeguard the public as well as the interests of the nurses themselves the teaching should be of a high order. Candidates for training as nurses should be between 22 and

32 years of age. They should have a High School diploma or its equivalent, as women of education and culture are always preferred. In selecting a training school an educated woman is not likely to choose a Hospital which gives its nurses a minimum of training. High personal character, adaptability, tact, good temper, and a kindly manner are, however, of more importance in a nurse than ability to pass a written and oral examination, though this also is necessary.

By affiliation of Hospitals a good deal might be done in this country to improve the training of nurses. Where a special Hospital lacks certain departments that are essential in the training of a nurse arrangements might be made whereby the nurses could obtain this necessary instruction which they are unable to get in their own Hospital. This, of course, would not take the place of the necessary general training, but would be a valuable addition.

Statistics of Nursing.

In Appendix No. VII. will be found a table giving the number of nurses employed in 66 Hospitals, with the length of training given and other details. On referring to this table Hospital administrators and managers will find at a glance the proportion of nurses to patients in each of these various types of Hospital and also the remuneration given to nurses.

APPENDICES.

APPENDIX I.

Inventory of Outfit for Operation Theatre, &c.

Cabinet for Instruments, Glass, four shelves, - - -	£22	0	0
Operation Table, - - - - - - - -	15	0	0
Wash-hand Basins, single, 2 at 30s. each, - - - -	3	0	0
„ „ double, - - - - - - - -	2	10	0
Instrument Stand, with two trays, as illustration No. 26, -	7	10	0
Glass Tables, with two shelves, 2 at £5 15s. each, - -	11	10	0
Cabinet for Bandages and Dressings, - - - - - -	10	0	0
Receptacle for Soiled Dressings, - - - - -	3	10	0
Chairs, enamelled frames, 2 at £1 6s. each, - - -	2	12	0
Wound Irrigator (adjustable), as illustration No. 28, - -	7	10	0
Ambulance Trolleys (metal), 2 at £15 each, as illustration No. 25, - - - - - - - - -	30	0	0
Towel Rail, - - - - - - - - -	0	15	0
Apparatus for Galvanic, Faradic, and Electrolysis Treatment, - - - - - - - - - -	20	0	0
Sterilization Apparatus for Water, - - - - -	35	0	0
„ „ „ Instruments, - - - -	18	10	0
„ „ „ Dressings, - - - - -	50	0	0
Receptacles for Sterile Dressings, 2 at £1 each, - - -	2	0	0
Stool for Anæsthetist, - - - - - - - -	4	0	0
Glass Table, two shelves, for Anæsthetics, - - - -	6	0	0
Large Bore Ether Inhaler, two face pieces, medium and small, - - - - - - - - - -	4	10	0
Gas Apparatus to fit Large Bore Inhaler, - - - -	2	10	0
100-Gallon Steel Cylinders and Fittings, 2 at £5 each, -	10	0	0
Junker's Chloroform Inhaler, - - - - - -	2	5	0
	£270	12	0

APPENDIX II.

Inventory of Linen, &c., required for a Ward of 18 *Beds, with probable Cost.*

Blankets,	48 pairs at	16s. per pair,	£38	8	0
Binders,	24 ,,	7s. 9d. ,,	9	6	0
Sheets (Linen),	120 ,,	4s. 6d. each,	27	0	0
Draw Sheets,	50 ,,	1s. 10d. ,,	4	11	8
Death Sheets,	4 ,,	4s. 6d. ,,	0	18	0
Pack Sheets,	4 ,,	4s. 6d. ,,	0	18	0
Bolster Slips,	60 ,,	2s. ,,	6	0	0
Under Bolster Slips,	24 ,,	7d. ,,	0	14	0
Pillow Slips,	90 ,,	1s. 4d. ,,	6	0	0
Under Pillow Slips,	24 ,,	6d. ,,	0	12	0
Mattress Slips,	24 ,,	5s. 6d. ,,	6	12	0
Coloured Quilts,	30 ,,	7s. 8d. ,,	11	10	0
White Quilts,	30 ,,	7s. ,,	10	10	0
Doctors' Towels,	50 ,,	16s. 6d. per doz.,	3	8	9
Patients' Towels,	50 ,,	8s. 3d. ,,	1	14	4
Roller Towels,	6 ,,	1s. 4d. each,	0	8	0
Kitchen Towels,	6 ,,	4s. 6d. per doz.,	0	2	3
Table Cloths,	4 ,,	8s. 3d. each,	1	13	0
Shirts,	90 ,,	21s. 8d. per doz.,	8	2	6
Dressing Gowns,	4 ,,	8s each,	1	12	0
Red Blanket Shawls,	20 ,,	4s. ,,	4	0	0
Slippers,	12 ,,	1s. 0d. per pair,	0	12	0
Suits,	12 ,,	9s. 6d. ,,	5	14	0
Socks,	12 ,,	10½d. ,,	0	10	6
Screen Covers,	6 (9 yds.) at	6d. per yd.,	1	7	0
Clothes Bags,	24 (1 yd.) at	6½d. ,,	0	13	0
Soiled Linen Bags,	6 (1½ yds.) at	6½d. ,,	0	4	10½
Operating Theatre Sheets,	24 (2½ yds.) at	10¼d. ,,	2	12	0
Overalls for Theatre,	28 Linen for Doctors,		7	11	8
	12 Cotton for Nurses,		1	0	3
			£164	5	9½

APPENDIX III.

Inventory of Furniture for a Ward of 18 *Beds.*

18 Hospital Beds (Balcony Patent),	at	£2	14	0	£48	12	0
18 Hair Mattresses for above,	„	1	10	0	27	0	0
18 Wool Bolsters,	„	0	3	0	2	14	0
26 Feather Pillows,	„	0	6	0	7	16	0
18 Windsor Chairs,	„	0	3	0	2	14	0
1 Cypress Wood Table (on leather castors),	„	2	9	6	2	9	6
1 Ward Cabinet (glass top),	„	11	10	0	11	10	0
1 Easy Chair in Pegamoid (on leather castors),	„	3	15	0	3	15	0
1 Couch in Pegamoid (on leather castors),	„	4	5	0	4	5	0
4 Bed Screens, as Diagram No. 19,	„	3	0	0	12	0	0
18 Glass Top Bedside Tables,	„	0	17	0	15	6	0
1 Wall Mirror for Bathroom,	„	0	6	0	0	6	0
1 Ward Clock,	„	2	10	0	2	10	0
1 Bed Table,	„	1	2	0	1	2	0
1 Bag Holder, as Diagram No. 16,	„	1	2	0	1	2	0
6 Portable Electric Lamps,	„	0	6	6	1	19	0
1 Weighing Machine,	„	3	3	0	3	3	0
Total,					£148	3	6

APPENDIX IV.

Inventory of Crockery, Cutlery, &c., for a Ward of 18 *Beds.*

12 Foot Warmers,	at	£0	1	3	£0	15	0
12 Feeding Cups,	„	0	0	6	0	6	0
2 Ewers,	„	0	1	8	0	3	4
2 Basins,	„	0	1	8	0	3	4
10 Wash-Hand Basins,	„	0	0	9	0	7	6
2 Soap Trays,	„	0	1	0	0	2	0
1 Soap Tray (Kitchen),	„	0	0	4	0	0	4
2 Brush Trays,	„	0	1	0	0	2	0
1 Brush Tray (Kitchen),	„	0	1	0	0	1	0
18 Egg Cups,	„	0	0	1	0	1	6
2 Bread Plates,	„	0	0	6	0	1	0
24 Large Plates,	„	0	0	3	0	6	0
18 Small Plates,	„	0	0	2	0	3	0
18 Mugs,	„	0	0	2	0	3	0
36 Bowls,	„	0	0	2	0	6	0
4 Large Bowls,	„	0	0	4	0	1	4
18 Spitmugs (glass),	„	0	1	0	0	18	0
2 Teapots,	„	0	0	3	0	0	6
18 Egg Spoons,	„	0	0	1	0	1	6
Carry forward,					£4	2	4

Brought forward,					£4	2	4
8 Jugs,	at	£0	0	9	0	6	0
6 Sick Basins,	„	0	0	6	0	3	0
2 Carafes,	„	0	0	6	0	1	0
1 Half-pint Measure,	„	0	0	4	0	0	4
1 Pint Measure,	„	0	0	6	0	0	6
2 Tumblers,	„	0	0	3	0	0	6
12 Bed Pans,	„	0	2	3	1	7	0
18 Glasses for Urine Collectors,	„	0	3	0	2	14	0
18 Slippers for Urine,	„	0	1	0	0	18	0
6 Rubber Bottles,	„	0	6	0	1	16	0
4 Urine Bottles,	„	0	1	0	0	4	0
20 Trays,	„	0	1	3	1	5	0
1 Bread Knife,	„	0	1	0	0	1	0
1 Bread Board,	„	0	2	6	0	2	6
1 Soup Ladle,	„	0	0	9	0	0	9
20 Knives,	„	0	0	6	0	10	0
18 Forks,	„	0	0	5	0	7	6
6 Large Spoons,	„	0	0	7	0	3	6
36 Spoons,	„	0	0	6	0	18	0
20 Tea Spoons,	„	0	0	4	0	6	8
4 Saucepans,	„	0	3	6	0	14	0
1 Strainer,	„	0	0	6	0	0	6
1 Kettle,	„	0	3	0	0	3	0
1 Refuse Pail,	„	0	3	3	0	3	3
2 Scrubbing Pails,	„	0	0	9	0	1	6
2 Scuttles,	„	0	2	6	0	5	0
1 Coal Shovel,	„	0	0	9	0	0	9
4 Large Tin Cans,	„	0	4	6	0	18	0
2 Small Tin Cans,	„	0	2	0	0	4	0
Food Carrier,	„	2	5	0	2	5	0
2 Sweeping Brushes,	„	0	2	6	0	5	0
2 Banister Brushes,	„	0	1	3	0	2	6
1 Small Black Lead Brush,	„	0	0	4	0	0	4
2 Black Lead Brushes,	„	0	1	3	0	2	6
1 Scrubbing Brush,	„	0	0	6½	0	0	6½
6 Nail Brushes,	„	0	0	2½	0	1	3
1 W.C. Brush,	„	0	0	9	0	0	9
1 Kneeling Mat,	„	0	0	9	0	0	9
1 Pot Scrubbing Brush,	„	0	0	1	0	0	1
1 Knife Board,	„	0	1	0	0	1	0
1 Spatula,	„	0	1	0	0	1	0
1 Soap and Soda Box,	„	0	1	6	0	1	6
6 Tins for Stores (Tea, Sugar, &c.),	„	0	1	0	0	6	0
4 Salts and Spoons,	„	0	0	4	0	1	4
4 Pepper Boxes,	„	0	0	2	0	0	8
2 Mustards and Spoons,	„	0	0	6	0	1	0
2 Sugar Basins,	„	0	0	10	0	1	8
Total,					£21	10	5½

APPENDIX V.

Analysis of the Nurses' Home at the Hospital for Sick Children, Toronto.

THIS is probably the best-equipped Nurses' Home attached to any Hospital. It was presented to the Hospital for Sick Children by Mr. J. Ross Robertson, Toronto.

The building (which cost £28,000) has a frontage of 159 feet and a depth of 44 feet, with a portico 50 feet by 20 feet. It is built of red brick, and is five storeys high, exclusive of the basement. The main entrance is at the west end of the portico.

Basement.—The basement contains: Domestics' Lavatory, 2 Store Rooms, Domestics' Dining and Sitting Room, Demonstration Room, Vacuum Cleaning Plant, 2 Trunk Rooms, Cold Storage Plant, Dietician's Kitchen, Swimming Pool, Sewing Room, Heating Plant.

Ground Floor.—The ground floor is reached by three entrances. It contains: Receiving Room for Supplies, Kitchen, Cook's Pantry, Pantry for Stores, Sewing Pantry, Superintendent's Dining Room, General Reception Hall, Parlour, Music Room, Writing Room, Library, Lecture Room, Waiting Room.

First Floor.—This contains: 21 Bedrooms, each with Clothes Closet attached; 4 Baths and 3 Lavatory Basins, Lady Superintendent's Suite, Nurses' Parlour, Linen Closets, and Slop Sinks.

Second and Third Floors.—These are repetitions of the first floor.

Fourth Floor.—This floor is divided into two parts. It has 21 Bedrooms for Domestics, with Bathrooms; also a Gymnasium. There is access from this floor to a Roof Garden.

The motive which actuated the donor of the Nurses' Residence is thus expressed in the official description of the building:—"A large amount of duty and of hard work is required of these women, and to do this they must be kept in perfect health; they must live under the best sanitary conditions, with good food, well-ventilated rooms, and up-to-date methods, by the aid of baths, gymnastic exercises, and physical instruction, so that they may not only be in the best of health during their stay in the Hospital, but when they go out to labour in the nursing field, they will do so under the best possible conditions."

APPENDIX VI.

STATEMENT SHOWING CONDITIONS UNDER WHICH MEDICAL AND SURGICAL APPOINTMENTS ARE HELD IN THE PRINCIPAL HOSPITALS IN THE UNITED KINGDOM.

I.—*Hospitals to which Medical Schools are attached.*

METROPOLITAN HOSPITALS.

Name of Hospital.	Conditions of Medical and Surgical Appointments.
Charing Cross Hospital,	Retire at 60.
Guy's Hospital,	Retire at 60.
King's College,	Retire at 65.
London Hospital,	Elected annually; retire after 20 years' service.
Middlesex Hospital,	Retire at 65.
Royal Free Hospital,	Retire at 60. The Committee reserve the power to re-elect, annually, any member until he is 65, at which age retirement is compulsory.
St. Bartholomew's Hospital,	Retire at 65.
St. George's Hospital,	No Physician or Surgeon shall hold office beyond a period of 20 years from his last election, nor beyond the age of 65, unless a special Court shall declare to the contrary.
St. Mary's Hospital,	Appointed for 5 years; eligible for re-appointment from time to time, unless they have held office for 20 years, or be above 65 years.
St. Thomas' Hospital,	Retire after completing 20 years' service, or on attaining the age of 60; eligible for election as Hon. Physician or Surgeon.
University College Hospital,	Retire at 65.
Westminster Hospital,	Retire at 65, or after 20 years' service, whichever first happens.

PROVINCIAL HOSPITALS.

Name of Hospital.	Conditions of Medical and Surgical Appointments.
Aberdeen Royal Infirmary,	Elected annually ; retire at 60. It shall, however, be in the power of the Directors, should they be perfectly satisfied as to fitness, to extend, by special resolution and for one year at a time, the period of office of the Professor of Medicine or Surgery in the University of Aberdeen, after this limit of age has been reached.
Belfast Royal Victoria Hospital,	Re-elected every 4 years ; retire at 65.
Birmingham General Hospital,	Surgeons retire at 60, Physicians at 65, or at the end of 25 years' service.
Birmingham Queen's Hospital,	Retire at 60.
Bristol Royal Infirmary,	Physicians retire at 60, Surgeons at 55, but may, after 14 years' service, be appointed Hon. Consulting Physician or Surgeon.
Cambridge Addenbrooke Hospital,	Elected for 12 years ; eligible for re-election, but cannot continue to hold office after attaining the age of 65.
Edinburgh Royal Infirmary,	5 years ; reappointed for similar second or third period at discretion of Managers ; none hold office after attaining the age of 65 ; whole term not to exceed 15 years.
Glasgow Royal Infirmary,	Appointed annually ; retire at 60.
Glasgow Western Infirmary,	The Visiting Physicians and Surgeons are elected annually, at the ordinary meeting of the Board, in May of each year. Members of the Visiting Staff, whether Medical or Surgical, are not eligible for re-election after they have reached the age of 65. The limit as to age does not apply to the Professors of Surgery and Clinical Surgery, and the Professors of Medicine and Clinical Medicine in the University of Glasgow.
Glasgow Victoria Infirmary,	Annual appointments ; retire at 60.
Leeds General Infirmary,	On attaining age of 60, or after 20 years' service.
Liverpool Royal Infirmary,	Retire at 60.
Liverpool Royal Southern Hospital,	Retire at 60 ; under exceptional circumstances, may be appointed Hon. Physician or Surgeon ; elected annually.

Provincial Hospitals—*continued.*

Name of Hospital.	Conditions of Medical and Surgical Appointments.
Manchester Royal Infirmary,	Retire at 60.
Newcastle-on-Tyne Royal Infirmary,	Retire at 60.
Oxford Radcliffe Infirmary,	No age or time limit.
Sheffield Royal Infirmary,	Surgeons retire at 60, Physicians at 65.

II.—*General Hospitals without Medical Schools.*

Blackburn Infirmary,	Elected for periods of 7 years but eligible for re-election; shall not hold office for a longer period than 21 years, and shall then become Hon. Consulting Physician or Surgeon.
Bradford Royal Infirmary,	Appointed for 10 years, and eligible for a second term of 10 years. On retirement after 15 years they are entitled to 2 beds for life.
Bristol General Hospital (now has Medical School),	Physicians retire at 65, Surgeons at 60.
Derbyshire Royal Infirmary,	Retire at 60, and, if they have served 10 years, are consultants without election.
Devon and Exeter Hospital,	20 years' service, but must retire at 65.
East Suffolk and Ipswich Hospital,	Retire at 65.
Gloucester General Infirmary,	Physicians retire at 65, Surgeons at 60.
Great Northern Central Hospital, London,	Appointed for periods of 10 years; must retire after 20 years' service, or on attaining the age of 65.
Greenwich Seaman's Hospital,	No age or time limit.
Hull Royal Infirmary,	No appointment to exceed 20 years, and not eligible for re-election on the expiration of any term of appointment; retire at 60.
Lancaster Royal Infirmary,	Appointed for terms of 8 years, and eligible for re-election till they reach 60.
Leicester Infirmary,	Retire at 60

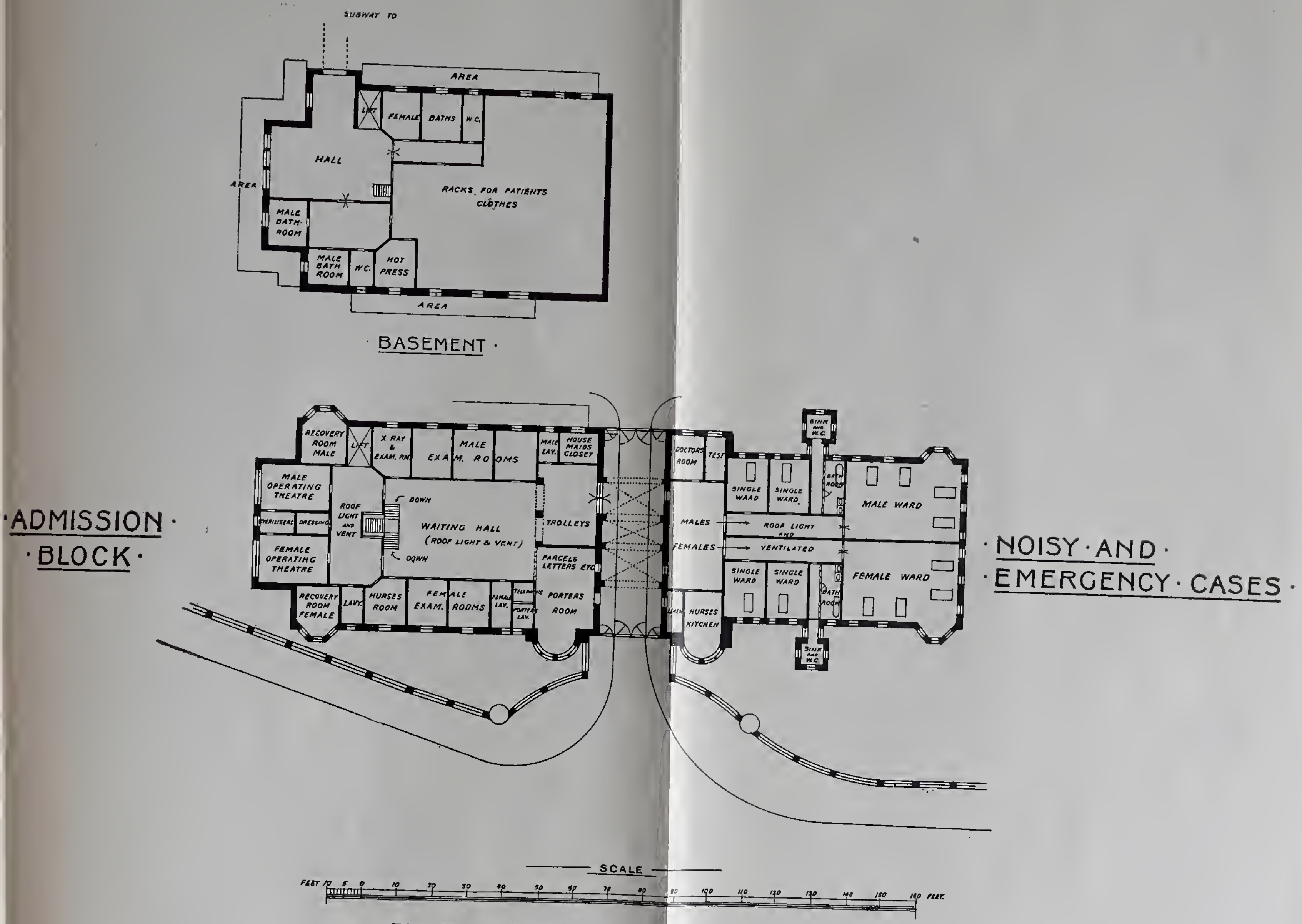
General Hospitals without Medical Schools—*continued.*

Name of Hospital.	Conditions of Medical and Surgical Appointments.
Lincoln County Hospital,	No age or time limit.
Liverpool Northern Hospital,	Appointed annually; retire at 60.
Metropolitan Hospital,	Retire at 65.
Norfolk and Norwich Hospital,	Retire after 25 years' service, or on attaining the age of 65; take rank of Consulting Physician or Surgeon, with privileges of a Governor, for life.
North Staffordshire Infirmary,	Appointed for a definite period of 20 years, or to retire at 60.
Salford Royal Infirmary,	Retire at 60.
Salisbury Infirmary,	Retire at 65.
South Devon and East Cornwall,	Appointed for 5 years; retire at 65, but may be requested to retain the office for a definite period.
Sunderland Infirmary,	Appointed for 7 years; eligible for re-election; retire at 60.
Surrey Royal County Hospital,	Retire at 60; undergo one election only.
Sussex County Hospital,	No one retained after age of 65, or after more than 20 years' service.
Warneford General Hospital,	Term of 8 years, and eligible for reappointment; Surgeons retire at 60.
West London Hospital,	Retire after 20 years' service, or on attaining the age of 60.
Wolverhampton and Staffordshire General Hospital,	Elected for 5 years and eligible for re-election; retire at 60.
York County Hospital,	Elected for 10 years; eligible for re-election; retire at 65.

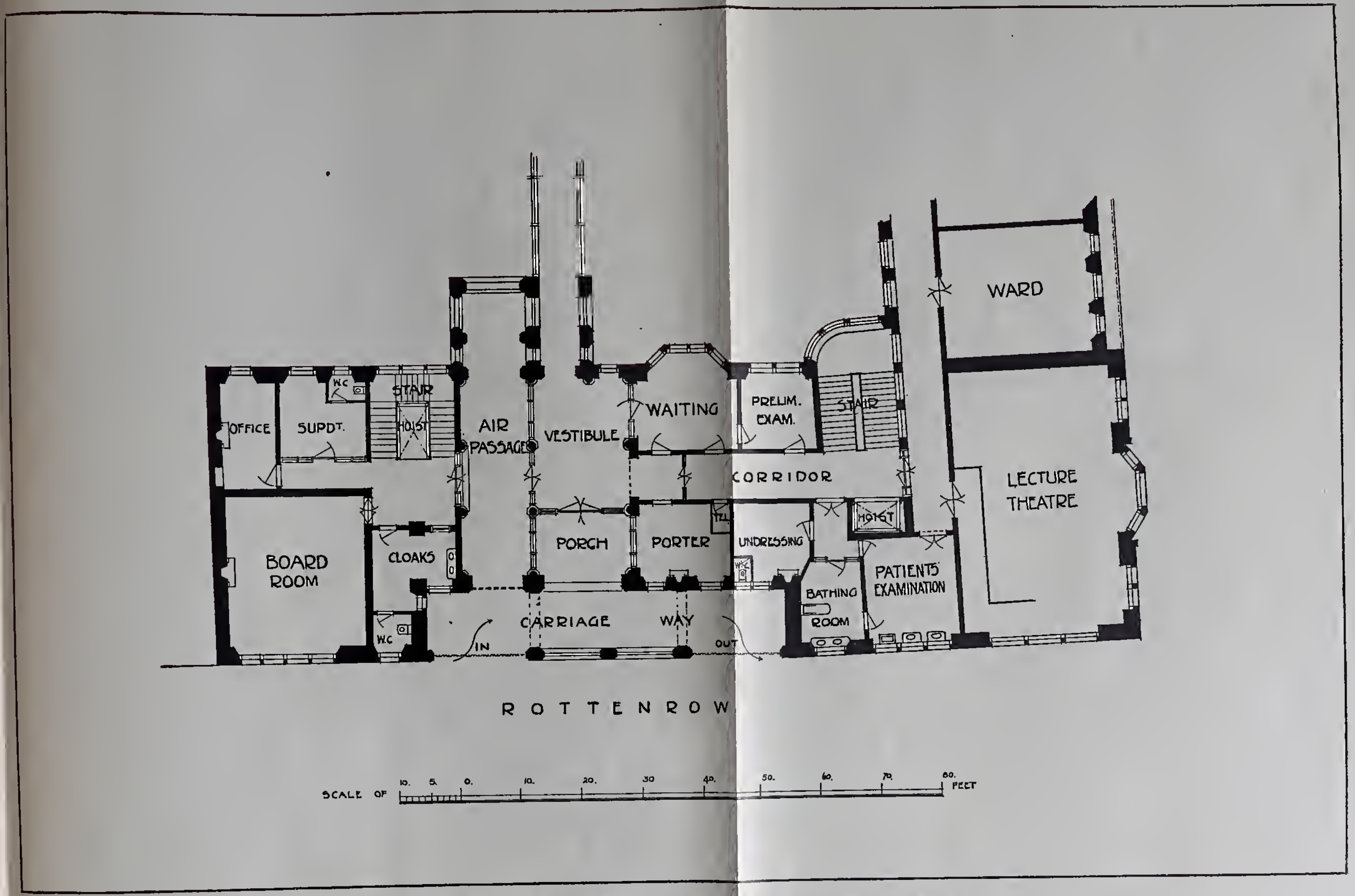
APPENDIX No. VII.

STATISTICAL INFORMATION IN REGARD TO THE NURSING STAFF, CONDITIONS OF SERVICE, TRAINING, &c., OBTAINED FROM SIXTY-SIX HOSPITALS, 1907.

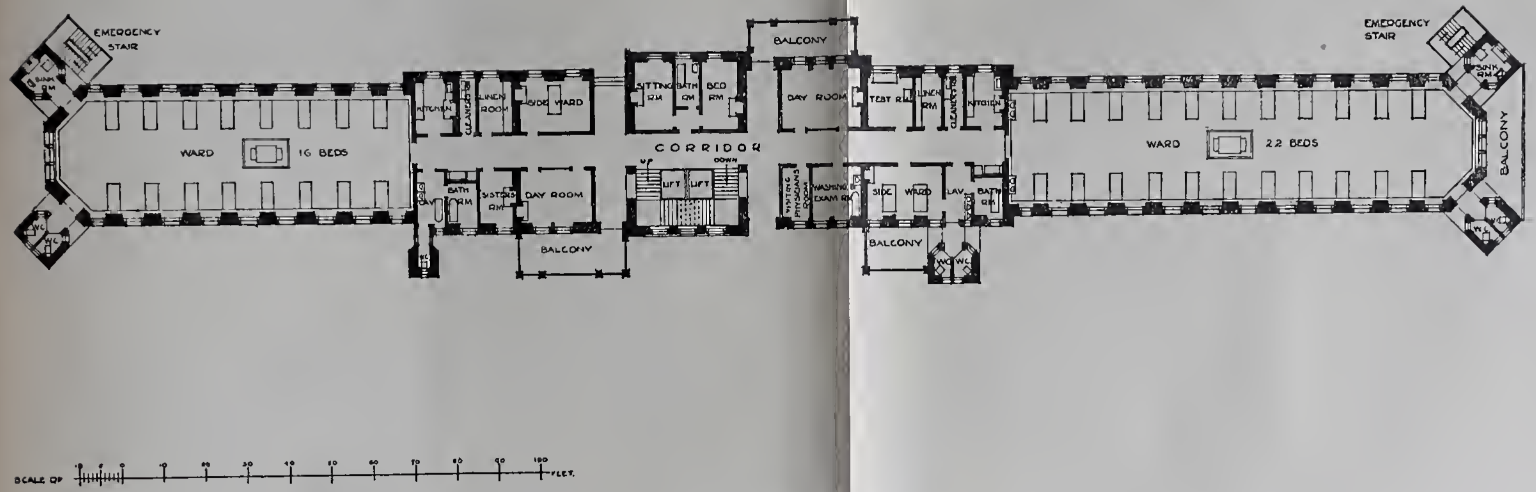
NAMES OF HOSPITALS.	Established.	No. of Beds.	Av'ge No. Occupied.	NURSING STAFF. Exclusive of Matrons and Assistant Matrons.							Term of Training.	SALARIES OF STAFF.					Paying Probationers' Fees.	Is a Certificate given?	If so, after what Tests of Efficiency?	Are Pensions given or Assisted to?	If so, by whom?	REMARKS.
				No. of Staff.	Sisters.	Nurses.	Asst. Nurses.	Probationers.	Paying Prob.	Nurses for Private Families.		Sisters.	Nurses.	Assistant Nurses.	Probationers.	Private Nurses.						
											YEARS.	£	£	£	£	£	£					
London Hospital,	1740	614	790	434*	78	77	.	267	12	208†	4	30 to 40	24 to 27	..	12 to 20	30 to 45	£13 13s. per quarter.	Yes	A certificate is given after two complete years' training in the wards, not including the seven weeks' preliminary training, which is given at the Preliminary Training Home before the Candidate enters the Hospital. Lectures by the Matron and Members of the Surgical and Medical Staff are given, and three examinations are held during the year, the questions being set by an outside examiner appointed by the Committee. The Final Examination is divided into three parts—written, viva-voce, and practical, and is conducted throughout by the examiner named above. No probationer is granted a certificate of training who has not passed the Final Examination	Yes.	The Committee	* This number is exclusive of private nurses. † The agreement is for four years. A certificate of training is granted at the end of two years, and a further certificate on the completion of the four years' agreement
Royal Infirmary, Edinburgh,	1736	920	850	244	31	25	123	63	2	..	3	30 to 50	25 to 28	12 to 20	£8, 1st year	..	.	Yes	On satisfactory completion of three years' course of training	There is a pension scheme for sisters. It is compulsory for all appointed after a certain date to join this scheme. Policies for Annuities of £25 each at the age of 55 are taken out with an Insurance Company	The Managers contribute ½ of the premium while the sister contributes the other ½. Those sisters not on the Pension Scheme receive consideration of the Board on retiral	
Royal Infirmary, Glasgow,	1794	581	580	155	35	88	..	32	.	..	3	26 to 35	26 to 35	..	12 to 22	..	.	Yes	After written and oral examinations in anatomy, physiology, hygiene, surgery, medicine, ward work, and cookery	Pensions given to four old nurses—10s. per week	Managers	
Guy's Hospital, London,	1725	600	520·3	244'	34	70	.	110	24	..	3	30 to 50	18 to 30	..	£8, 1st year, 12, 2nd ,, 10 ,,	..	£1 1s. per week.	Yes	Three examinations and practical work	Yes: National Pension Fund for Nurses	Contributed to by Hospital	* Fifteen preliminary pupils pay £6 6s. for six weeks' training
Western Infirmary, Glasgow,	1874	.	543	175	14	28	88	45	..	..	4	30 to 40	£15, 2nd and 3rd year. £25, 4th year.			..	..	Yes	On report of satisfactory work in the wards. Written, oral, and practical examinations by lecturers and examiners			
St. George's Hospital, London,	1733	350	326	145	25	34	..	86	..	..	4	35 to 50	20	..	10, 14, 22	..	..	Yes	After examinations	Each case is dealt with on its merits	The Committee of Governors	
Middlesex Hospital, London,	1745	290	260	147	10	47	20	30	..	22	4	30 to 40	12 to 22	12 to 22	12 to 22	24 to commence and Com.	Nil.	Yes	On report of Lady Superintendent of satisfactory work in the wards after four years' training	After 20 years' service	The Hospital	The Middlesex Hospital Charity (Cancer) is not included in above statistics
General Hospital, Birmingham,	1766	346	304	102	16	13	18	25	..	..	3	30 to 34	24 to 28	16 and 18 2nd and 3rd year	..	..	21	Yes	Examinations and Matron's report	Occasionally after long service	Board of Management	Assistant Matron, Home Sister, and Night Superintendent are included in nursing staff. Salaries £50 and £40 respectively
Royal Infirmary, Newcastle-on-Tyne,	1751	400	330	120	19	.	100	..		.	3	28 to 40	24 to 28	1st year, Nil. 2nd ,, £10 3rd ,, 20	..	.	.	Yes	Examination after course of lectures	No	..	
Liverpool Royal Infirmary,	1745	295	269	135	14	..	40	30	6	45-50 & Dist.	3	30 to 35	25 to 35	16 to 18	10	25 to 35	35	Yes	Lectures and Examinations by Staff	£20 per annum after 20 years' service*	Special Superannuation Fund	* This applies to nurses on staff previous to 1880. There is now a new Pension Scheme in force, affiliating with Royal National Pension Fund for Nurses. A policy is taken out for each nurse by Committee of Training School of £5 at 50; the nurse taking out a policy of £10 at 55. Premiums of latter are deducted from salary
Manchester Royal Infirmary	1752	293	256	96	12	58	.	27	..	8	3	30 to 35	20 to 25	.	10 to 18	25 to 30		Yes	Examination by Medical Staff and Report on efficiency by Lady Superintendent	£25 a year on attaining 50 years of age, and 25 years' service, and if incapacitated from further work	Funds of the Infirmary	
St. Mary's Hospital, London,	1851	281	253	109	17	69	12 for massage, &c.	30	4	..	4	35 to 50	28 to 31	.	8 to 18	..	21s. per week.	Yes	After passing an examination	Yes	Affiliated with National Pension Fund	
Aberdeen Royal Infirmary,	1739	250	225	71	9	62	Nurses and Probationers.			..	3	30 to 45	..	..	10 to 20 Prob. & Nurses	..	..	Yes	Written examination during training and final at close thereof	Pensions are given in special cases of long service	From small Fund belonging to the Institution	
Bristol Royal Infirmary,	1735	270	225	109†	16	10	44	33	6	30*	3	30 to 35	..	12 to 16	6	28 to 40	All Prob., £2 fee. Paying Prob., £25.	Yes	After written and practical examinations	Yes: Part premium paid. R.N.P.F.	The Committee	* Staff of private nurses will probably be increased † Midwifery pupils, 5; Massage pupils, 5
Bradford Royal Infirmary,	1825	220	181	58	14	..	41		.	..	3	30 to 35		10, 10, 10 in all, £30 for three years.		.	..	Yes	Examination by Honorary Staff	No	..	
King's College Hospital,	1839	224	188	86	12	24	.	46	4	..	3	35 to 50	30 to 36	..	A. 15 to 20	..	£63 for 3 years.	Yes	After examination by Members of the Visiting Staff and Ward Sister's Reports	Yes	Half the Premium is paid by the nurses who join the Royal National Pension Fund for Nurses	A. No salary first year
Leicester Infirmary,	1771	200	191	64	13	51	Nurses and Probationers.			..	4	28 to 40	25, 4th year. 14, 3rd ,, 12, 2nd ,,	8, 1st year.		..	£10 10s. per quarter.	Yes	Three years and theoretical examinations	No	..	
North Staffordshire Infirmary and Eye Hospital,	1815	210	179	60	11	(9 staff)	..	(22 staff)	1	..	3	30 to 35	25 (staff).	20	Nil, 8, 16	..	..	Yes	Lectures and Examinations	..	..	
"Dreadnought" Seamen's Hospital,	1821	250	207	55	9	15	..	10	2	..	'3½	30 to 40	20 to 25	..	12 to 16	..	25 guineas.	Yes	Practical nursing in medical, tropical, and surgical work, and passing satisfactory examinations in anatomy, physiology, and nursing	Pensions are given to Nurses after 20 years' service	By grant of the Board	In addition to the pensions above mentioned the Society pays half the fees of any nurse who chooses to join the Royal National Pension Fund for Nurses ' Half a year in Woman's Hospital
Sunderland Infirmary,	1794	210	175	44	4	5	23	12	..	..	3	40 to 60	26 to 30	22 to 26	10 to 15		.	Yes	Examinations in anatomy, physiology, and hygiene	Pensions for Sisters	Infirmary	
Charing Cross Hospital,	1820	187	161	62	..	12	..	38	..	..	4	30 to 45	25 to 20	..	2nd year, 15 3rd ,, 20	..	52 guineas.	Yes	Three years' good service	No	.	
Royal Devon and Exeter Hospital,	1741	200	162	75	10	10	.	33	..	32	4	30 to 35	20 to 25	..	10 to 20	25 to 40	.	Yes	After four years' training	Nurses are given the opportunity of joining the Royal National Pension Fund, and the Hospital also takes out a Policy for them	.	
Norfolk and Norwich,	1771	220	168½	54	12	(14 staff)	14 senior prob.	14 junior prob.	..	20	4	30 to 36	8 to 24	Nil, 1st year.	..	32 to 40		Yes	Examinations by Honorary Medical and Surgical Staff	Yes	By the Board of Management	
Hull Royal Infirmary,	1782	240	187·8	64	12	18	..	21	3	17	4	26 to 34	14 to 17	..	(a) £3 10s. with a bonus of and £25	25 to 36	15 guineas.	Yes	A course of lectures by our Hon. Assistant Surgeons yearly, and examinations	Only in one case, for extremely long service, and incapacity in service	Out of the Private Nursing Fund Account	We have experienced difficulty in obtaining suitable women as paying probationers, and so we have determined to accept probationers as (a) they receive a bonus at £7, which is conditional upon their remaining the fourth year in the private nursing staff
Great Northern Central Hospital,	1856	169	145	51	11	9		31	..	..	3	30 to 35	25 to 25	..	8 to 20	..	Abolished.	Yes	After two examinations in subjects of instruction	There is no Pension Scheme. A late Matron receives £40 per annum. D.		D. Nursing rules are at present under revision, and many alterations will shortly be made in regard to salaries, hours of duty, and conditions of service
Sussex County Hospital,	1828	193	162	62	13	..	4	45	..	30	3	£37 10s. to £42 10s.	..	25	.	Rising to £50 with bonus of £15.	..	Yes	After three years' training and final examination	No	.	
Royal Free Hospital,	1828	165	149	56	11	35		8	1	Nil	3	35 to 45	27	.	8 to 24	Nil.	21s. per week,*	Yes	Examination by one of the Senior Physicians and Surgeons	Yes	Royal National Pension Fund	* Less according to circumstances
University College Hospital,	1835	270	242	110	15	38		50	7	..	3	35 to 50	24 to 27	..	8 to 15	..	£30	Yes	After examination by lecturers to nurses	No	..	
Royal Berks Hospital,	1837	159	110	50	10	18	2	20*	..	40	3	35 to 45	15 to 20	24	..	35 to 45	£2 2s.	Yes	Written and Verbal examinations by Members of Medical Staff and Matron	Yes: up to £7 per annum is paid to R.N. Fund, if Nurses take out a similar policy in their own account	Board from Nursing Fund	* All probationers are so called here until they have completed their three years' course
West London Hospital,	1856	146·8	140·61	59	10	(10* staff)		39'	..‡	..	4	28 to 40	24 to 30	..	9 to 24	..	£2 2s.	Yes To paid nurses only	Examinations conducted by Medical Staff	No	..	* These numbers are subject to variations as between themselves ‡ These are only received under special conditions and are rarely admitted as residents
Wigan Royal Albert Edward Infirmary,	1874	156	129	11	7	4	16	14	..	*	3	28 to 30	18 to 25 (staff nurses) 25 to 28	14 to 19	12	..	£26 one year	Yes	Three courses of lectures, three examinations by the Hon. Medical Staff of Hospital	No	.	* We have ceased to send out nurses to private cases since a local nurses' home has been established, apart from the Hospital, on private lines
Royal Portsmouth, Portsea, and Gosport Hospital,	1847	132	122	37	9	..	..	27	..	8	3	30	..	..	8 to 20	32 to 36	2 years, 15 guineas. 1 ,, 30 ,,	Yes	Personal observation of work and conduct	No	.	Probationers in their third year do staff or assistant nurses' duty. No night duty is given until after the first year
Radcliffe Infirmary, Oxford,	1773	150	117	40	9	31	Nurses and Probationers.			..	3	28 to 30	18 to 20	..	..	..	25	Yes	Examinations by Members of Honorary Staff			There are nine sisters, including Home Sister and Night Superintendent. Probationers pay a premium of £25 and receive a salary of £10 first year and £18 second year. A limited number are received without payment. These receive no salary for two years
Royal Halifax Infirmary,	1807	150	118·2	30	7	2	..	27	..	..	3	30 to 36	20 to 23	.	9 to 16		25	Yes	After passing an examination in medical and surgical nursing, and sick-room cookery	No		
South Devon and East Cornwall Hospital,	1840	150	110·96	62	10	3	20	..	7	10	3	30 to 35	18	15	.	25 to 35 with per centage of profits.	21s. per week for first six months.	Yes	Two examinations*	No		* Probationers pass an examination for rank of Junior Nurse and Junior Nurse for rank of Staff Nurse
Preston and County of Lancaster Royal Infirmary,	1865	136	104	39	4	..	9	11	..	15	4'	30 to 40		20 to 28	12 to 20	£40, except prob. in 4th year who get £20.	..	Yes	Four years' training	No		' Fourth year on private staff
Adelaide Hospital, Dublin,	1857	135	105	65	7	8	10	12	3	25	4	35 to 45	to 30	15 to 20	10 to 15	E. 20 to 30	Ord. Prob. £15 Paying Prob. 52	Yes	Examination by Medical Staff of Hospital	No	.	E. Plus Commission of 6d. per day ordinary cases; 1s. infectious; and 1s. 6d. massage
York County Hospital,	1740	150	95	23	9	9	2	12	6	..	3	25 to 35	5 to 16	..		..	£10	Yes	Examination	No	..	Probationers are paid after the first year
Addenbrooke's Hospital, Cambridge,	1719	148	106	45	8	.	..	37	Vary	..	3	35 to 40	..	..	£5 1st year, 10 2nd ,, 20 3rd ,,		£13 13s. a quarter.	Yes	After three years' satisfactory work in the wards and the passing an examination in Nursing and Elementary Anatomy and Physiology	There are two old nurses pensioned, but beyond this there is no definite arrangement	In the two cases quoted the Hospital purchased an annuity	
County Hospital, Lincoln,	1769	120	97	28	4	6	.	17	..	..	3	30	18 (staff)	..	1st year, Nil. 2nd ,, £12	.	..	Yes	After passing examination and satisfactorily completing engagement	No	.	One Night Superintendent
The Blackburn and E.L. Lancaster Infirmary,	1863	127	107	32	6	..	..	20	..	..	3	32 to 40			10 to 20		£10 10s.	Yes	After passing two examinations end of first and third year, and satisfying the Matron as to capability in ward work	No Pensions given		The probationers in second and third year do the duties of Staff Nurses under the Sisters. There are therefore no nurses answering to the "Nurses and Assistant Nurses" of a Union Infirmary
Salisbury Infirmary,	1766	118	81	30	8	..	4	13	5	..	3	26 to 32		.	8 to 14	.	Prem. of £10 10s.	Yes	Written reports from each ward worked in. Examinations are also held after each course of lectures	Yes. In cases of disablement after fifteen years' service	From "Fowler Trust Fund"	
Salop Infirmary,	1745	120	91	31	5	..	..	20	..	..	3	32		..	5 to 18	.	£1 1s. entrance fee. £8 8s. for training and pupils uniform.	Yes			..	Three years for Salop; three years for pupils from Nursing Institutions, &c.
Royal Hants County Hospital, Winchester,	1736	108	93	37	7	33	..	.	..	20	3 & 4	30 to 30	9 to 25	..	£6 after first three months.	25 to 36	..	Yes	Yearly examination	Yes	The Hospital is affiliated to the Royal National Pension Fund for Nurses and pays half the nurses' premium	
Bolton Infirmary,	1814	130	116	30	7	23	Nurses and Probationers.			..	3	30	12 to 18	..	..	..		Yes	After examination by the Honorary Medical Staff	No	..	
Worcester General Infirmary,	1745	132	102·2	30	8	..	3	20	..	..	2 & 3	27 to 34	..	10	10 to 15	..	3 years, no fee 2nd and 3rd year; 2 years no fee, no salary.	Yes	After completing term of training to the satisfaction of the authorities	Yes	Assisted through the Royal National Pension Fund for Nurses	
Warneford, Leamington, and South Warwickshire,	1832	113	76	40	5	23	Nurses and Probationers.			20	3	40	20	.	Nil.	20 to 35	£10 10s.	Yes	Three years' training	Assisted	The Committee	
Swansea General and Eye Hospital,	1814	141	121·56	38	7	30	Nurses and Probationers.			..	3	30 to 30	12 to 18	..		..	F. £10.	Yes	Examinations	No	..	F. All our probationers are now required to pay a premium of £10 on being engaged
North Devon Infirmary, Barnstaple,	1826	50	17	12	2	0	.	4	..	..	3	30	17	..	G. Nil to 12	..	.	Yes	That satisfaction is given in their work during training, and examination passed at finish	No	.	G. Our probationers give their first year without salary, but are provided with indoor uniform; during their second year they are paid £12. At present our probationers are ending their training with charge of children's wards
Leeds General Infirmary,	1853	395	365	93	16	52		26	..	..	3	30 to 40	10 to 25 Nurses and Probationers			..		Yes	Written examination in all departments	Yes: We have a small Pension Fund	The Weekly Board, according to the merits and length of service of each nurse	
East Suffolk and Ipswich Hospital,	1836	122	96·67	23	6	1		15	..	..	3	30 to 35	20 to 25	..	1st year, Nil. 2nd ,, £10 3rd ,, 12	..		Yes	After Annual Examination for three years	No	..	
Derbyshire Royal Infirmary, Derby,	1810	220	180	60	12	.		48	.	3	4	30 to 40	..	..	1st year, Nil. 2nd ,, £10 3rd ,, 16	4th year, £23 5th ,, 35 6th ,, 40		Yes	After three years' training and examinations after lectures by Members of the Hon. Medical Staff (two examinations per annum) four years given after private Nursing	No	..	
Bristol General Infirmary,	1735	200	181·3	60	12	18	18	6	12	25	3	44	16	11	12	22 to 33	25	Yes	Satisfactorily completing three years' training	Yes	Royal National Pension Fund for Nurses	
Cumberland Infirmary, Carlisle,	1840	108	83	24	4		..	20	..	9	4'	30 to 36	.	..	8 to 25	£30, rising £2 annually.	‡	No		.		' Four years' engagement taken (three years spent in Hospital and one year on private nursing staff). Three years' certificate given and separate certificate in respect of service on private nursing staff ‡ Paying probationers may be received for period of three months on payment of 13 guineas, but none have been taken for a considerable time now
Victoria Infirmary, Glasgow,	1881	200	240	74	14	14	..	30	9	..	3	30 to 40	25 to 28	..	12 to 20	.	20	Yes	Written Final Examination	Assisted	The Governors pay premiums for pension of £7 10s., and the nurse herself takes a policy for at least an equal sum	
Herefordshire General Hospital,	1776	100	60	20	6	8	..	7	..	14	3	25 to 35	12 to 20	.	1st year, Nil. 2nd ,, £10 3rd ,, 12	30 to 35		Yes	At expiration of training and examination papers by Staff	No		
Salford Royal Hospital,	1827	135	115	40	8	14	,	12	Nil	6	3	28 to 34	2nd year, £15 3rd ,, 20 4th ,, 22 5th ,, 25	.	1st six months Nil. 2nd six months £9	Private nursing staff is done by the Senior Nurses.		Yes	If the practical and theoretical knowledge of Nursing is considered satisfactory, and that the various duties allotted have been efficiently performed	No		
Royal Infirmary, Sheffield,	1797	255	228	69	13	10	.	16	..	..	4	38	25	15	5 to 10	..		Yes	After four years' training and on examinations arranged by the Staff	No		
St. Bartholomew's Hospital,	1123	740	612·40	277	28	222	Nurses and Prob.		27	..	4	65 to commence	30 to 40	..	1st year, £8 2nd ,, 12 3rd ,, 20	£13 13s.		Yes	After Final Examination	A Pension Scheme is in force which includes all salaried Officers, Nurses, and Servants. Pensions are granted only during the pleasure of the Governors		
Royal Infirmary, Dundee,	1798	400	245	89	16	71	Nurses and Probationers.			..	3	30 to 36	21 to 24	18	12'			Yes	Written, Oral, and Practical Examinations	No		' Each nurse pays £15 on admission
Kent and Canterbury Hospital,	1793	104	74·2	22	4	..	.	18	..	..	3	30 to 35	..	..	£15 3rd year.	.	.	Yes	Examinations after lectures by the Honorary Staff	No		
Royal Alexandra Infirmary,	1787	144	99·41	35	9	24	Nurses and Probationers.			5	3	30 to 34	.	..	15 to 24	21 per annum.	Nil.	Yes	Examination after lectures of Members of Medical Staff	No		
Greenock Infirmary,	1806	240	92* 150	35	7	21	..	7	..	..	3	30 to 35	14 to 18	..	10	..		Yes	Written and Oral Examination	No		* The figures for both the General Hospital and the Fever Hospital are given above. The two Hospitals are together meantime
St. Thomas's Hospital,	1200	561	475	154	26	103	& Assist. Nurses.	55	..	..	4	32 to 50	20 to 24	..	10	..	30	Yes	Three to four years	No		
Royal Victoria Hospital, Belfast,	1791	300	215·2	75	11	25	..	41	..	..	3	32 to 40	25 to 28	..	1st year, Nil. 2nd ,, £10 3rd ,, 15	.	.	Yes	After three annual examinations	No		
Chester General Infirmary,	1755	118	93	42	6	26	..	9	..	8	4	30 to 36	8 to 20	.	8 to 20	30 to 36		Yes	Usual examinations	No		



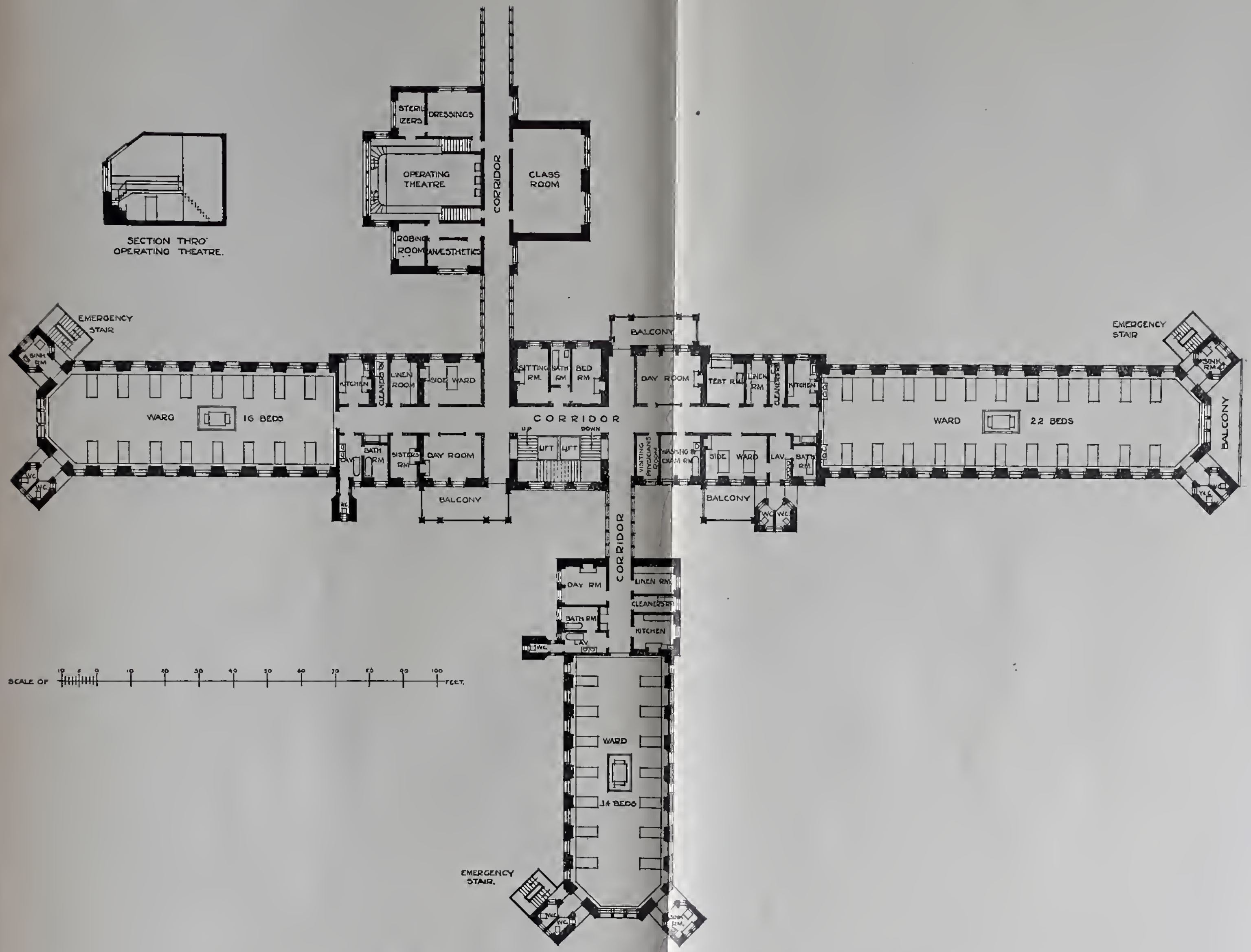
Plan No. 1—Admission Department of a General Hospital.



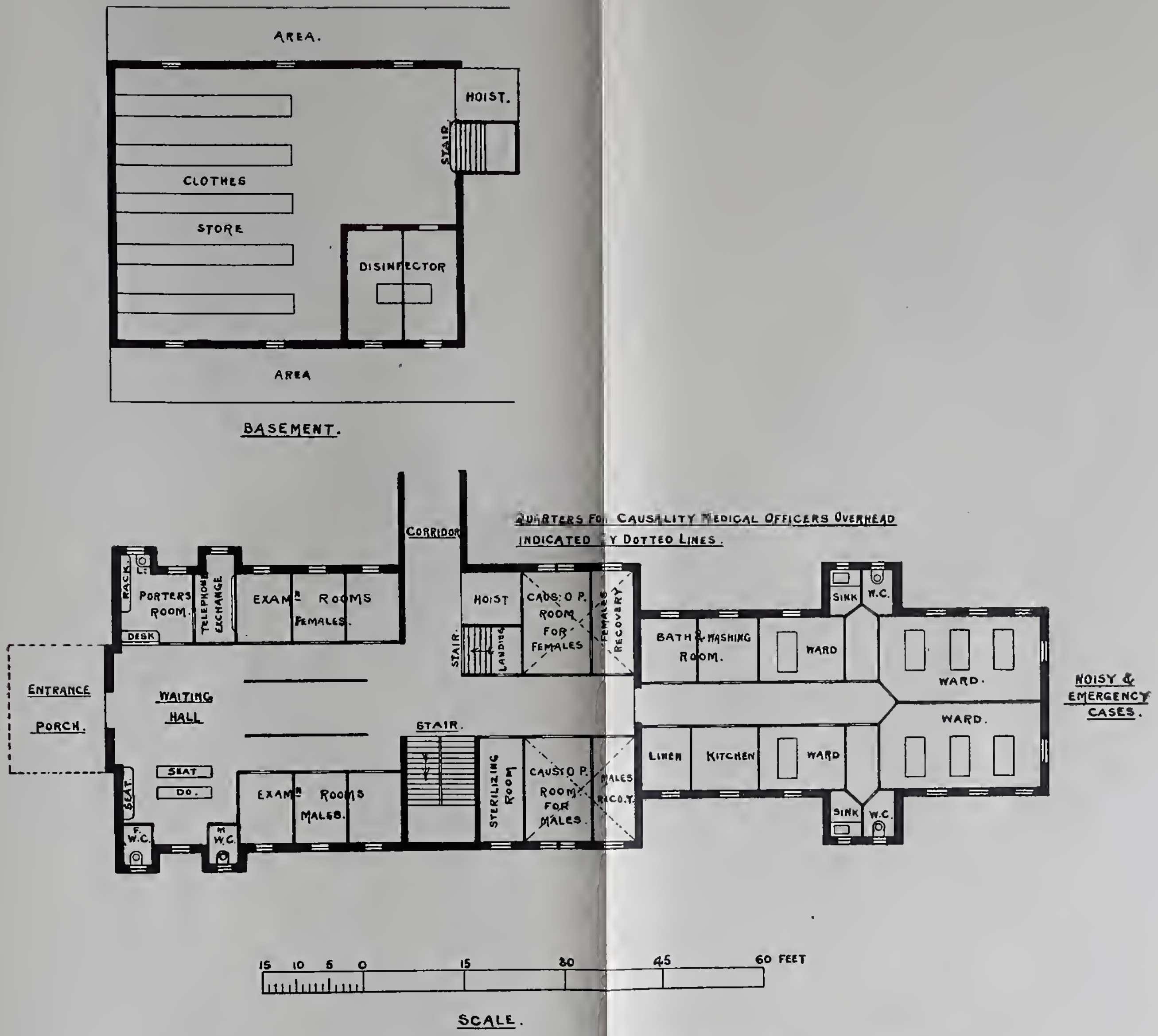
Plan No. 2—Admission Department of a Maternity Hospital.



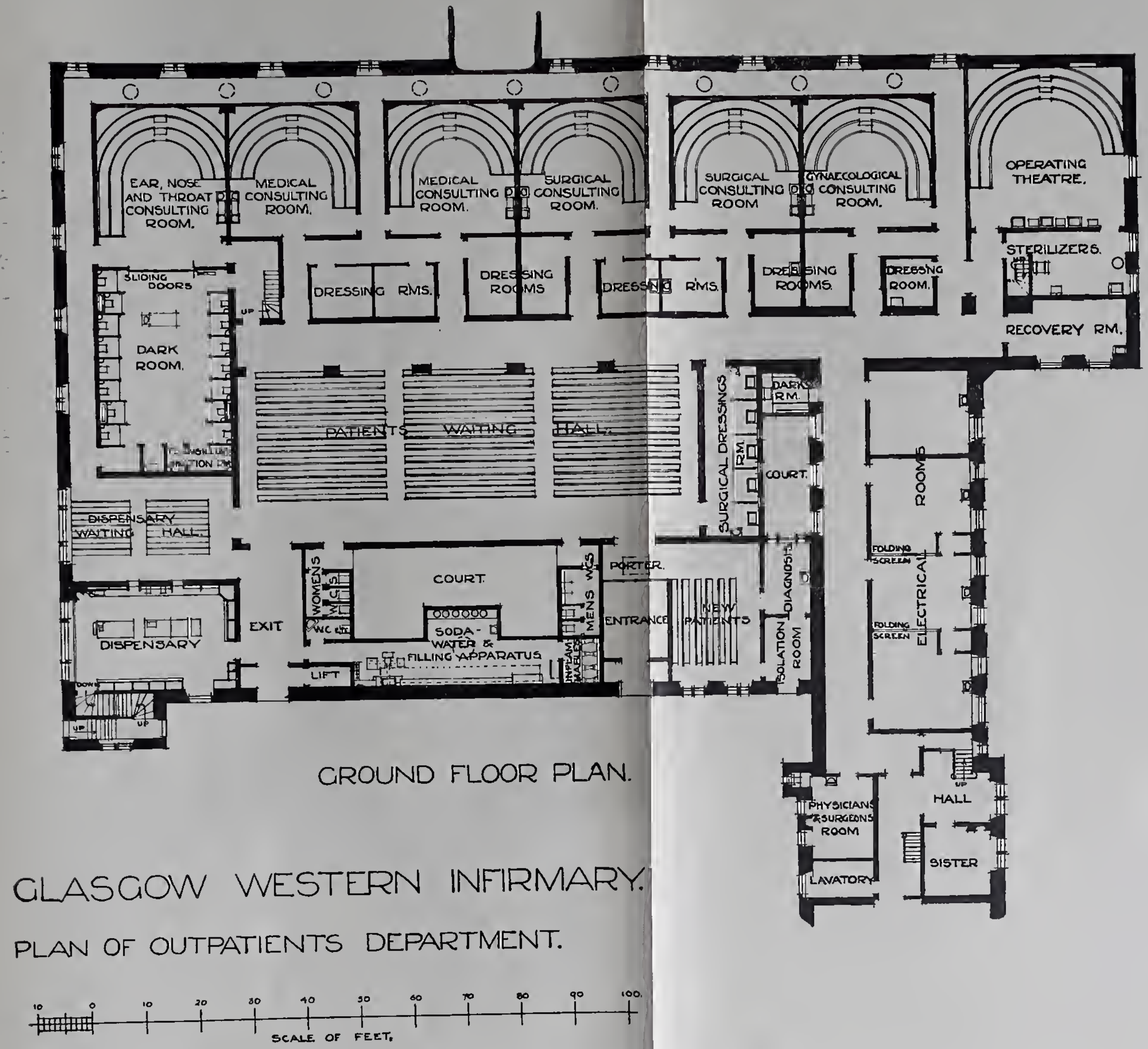
Plan No. 3—Medical Ward Unit.



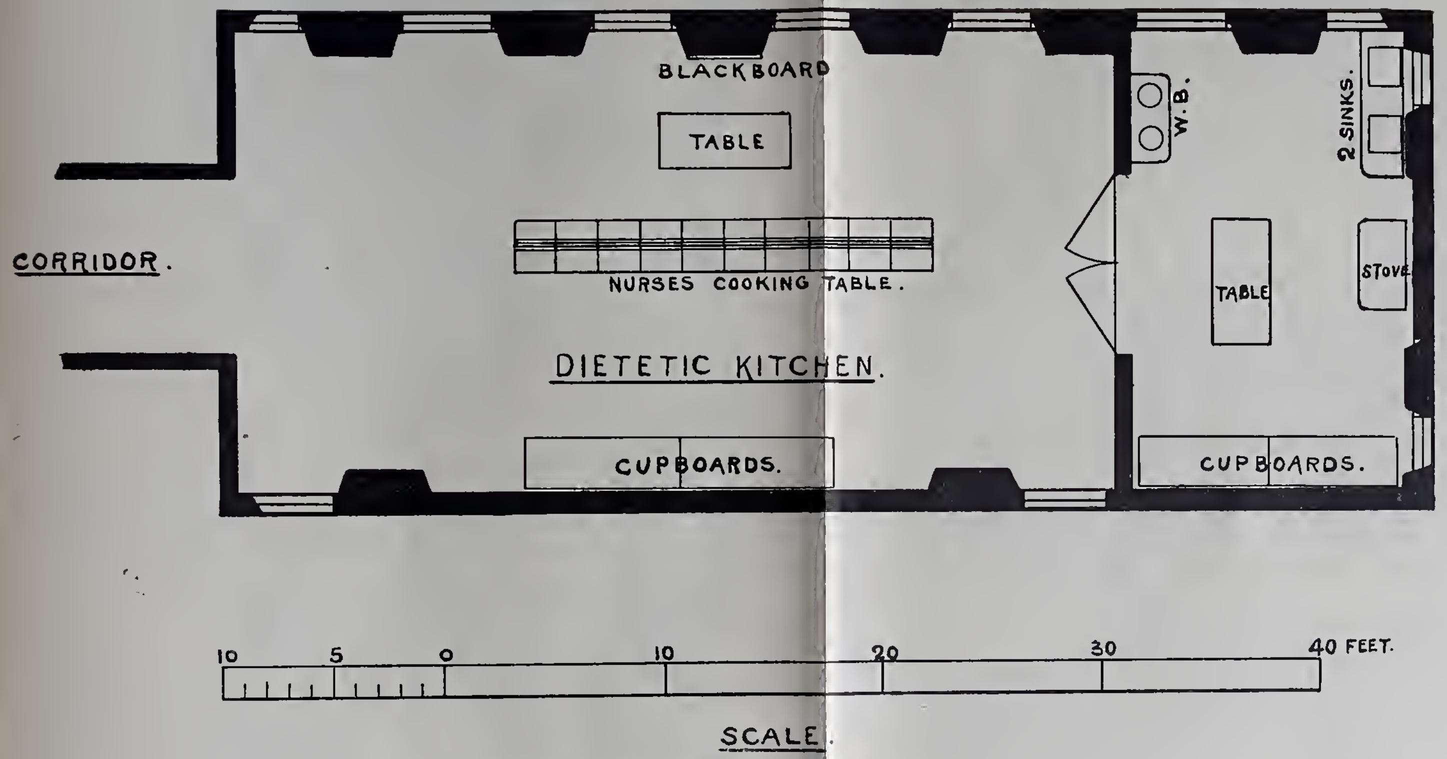
Plan No. 4—Surgical Ward Unit (Western Infirmary, Glasgow).



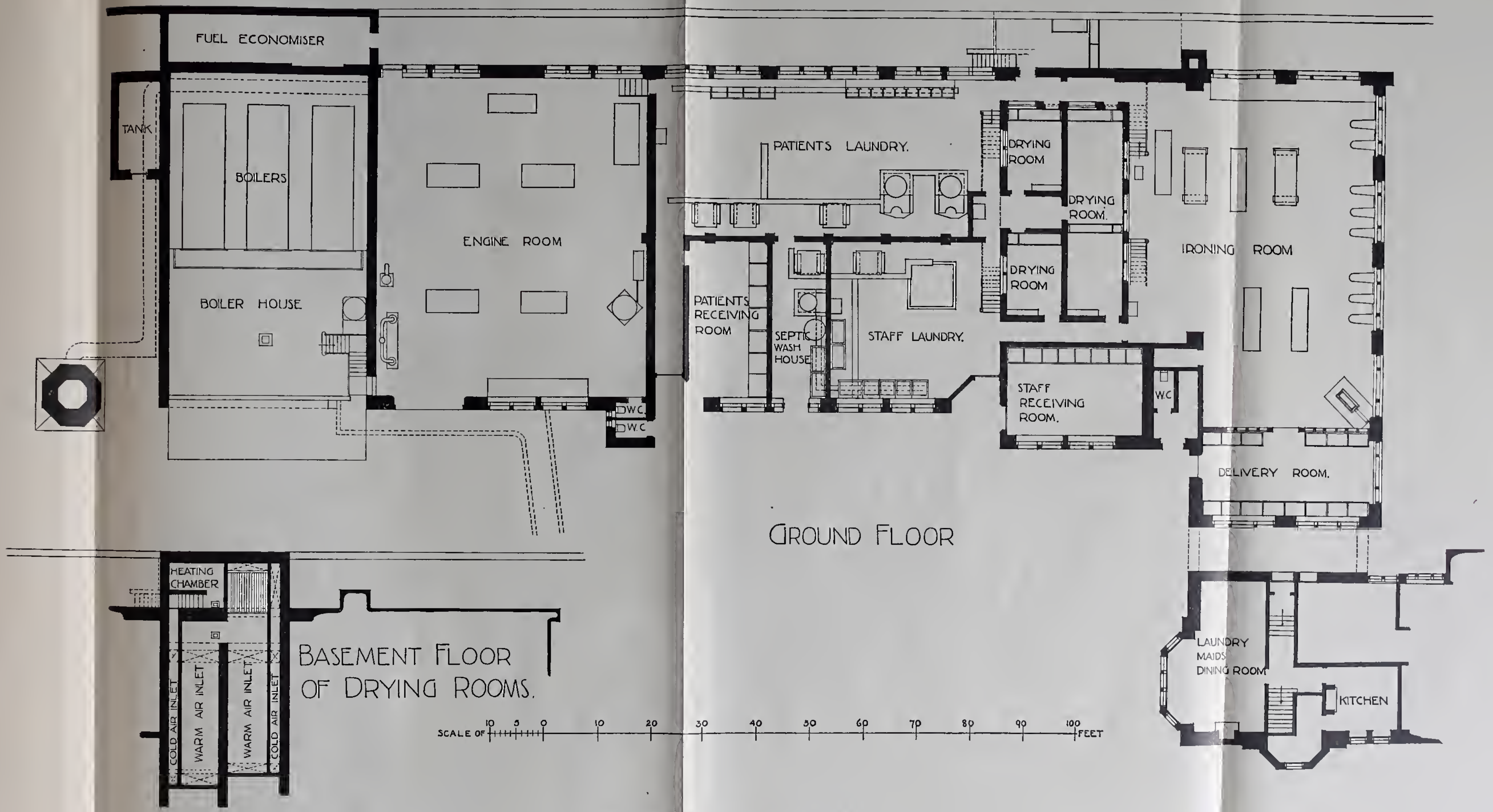
Plan No. 5—Admission Department attached to Main Hospital Building.



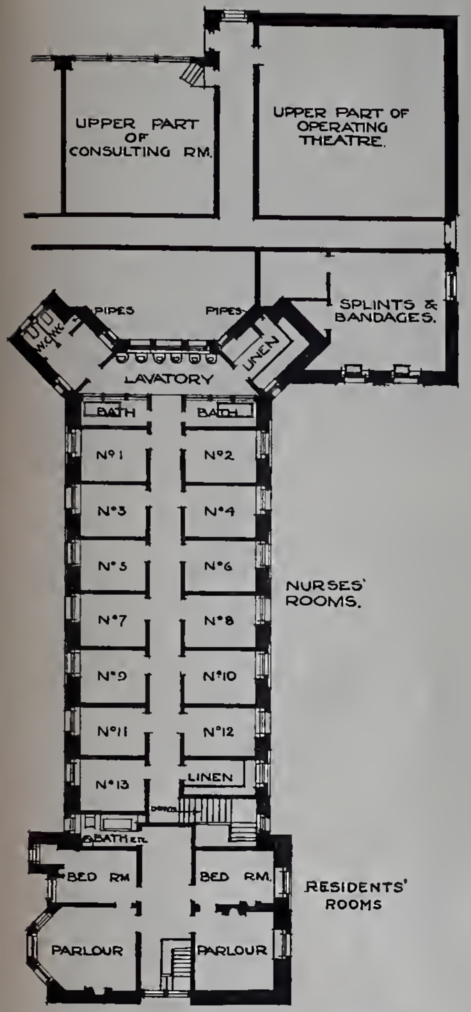
Plan No. 6—Out-Patients' Department.



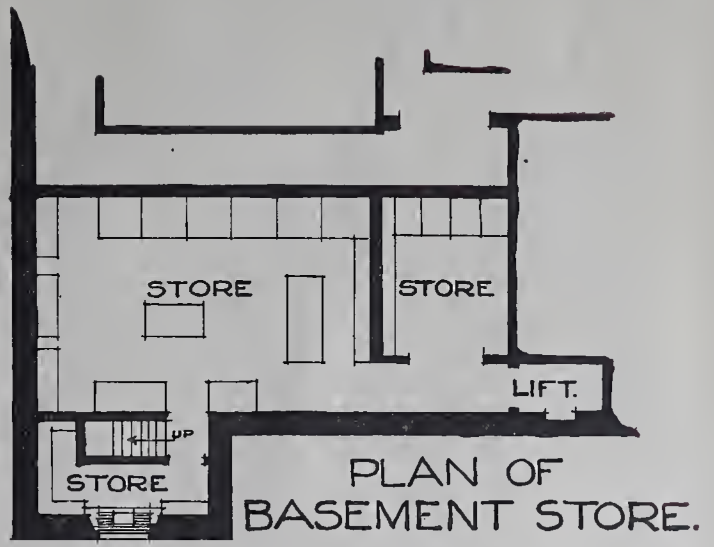
Plan No. 7—Dietician's Kitchen.



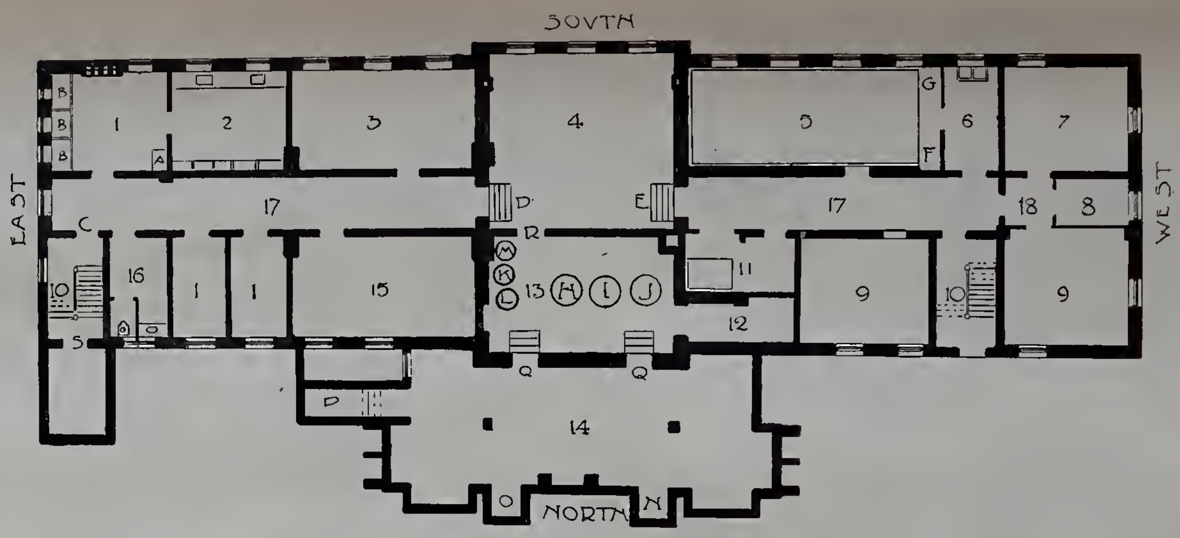
Plan No. 8—Laundry (Ground Floor).



Plan No. 10—Entresol Floor of Out-Patients' Department (showing accommodation for Nurses).



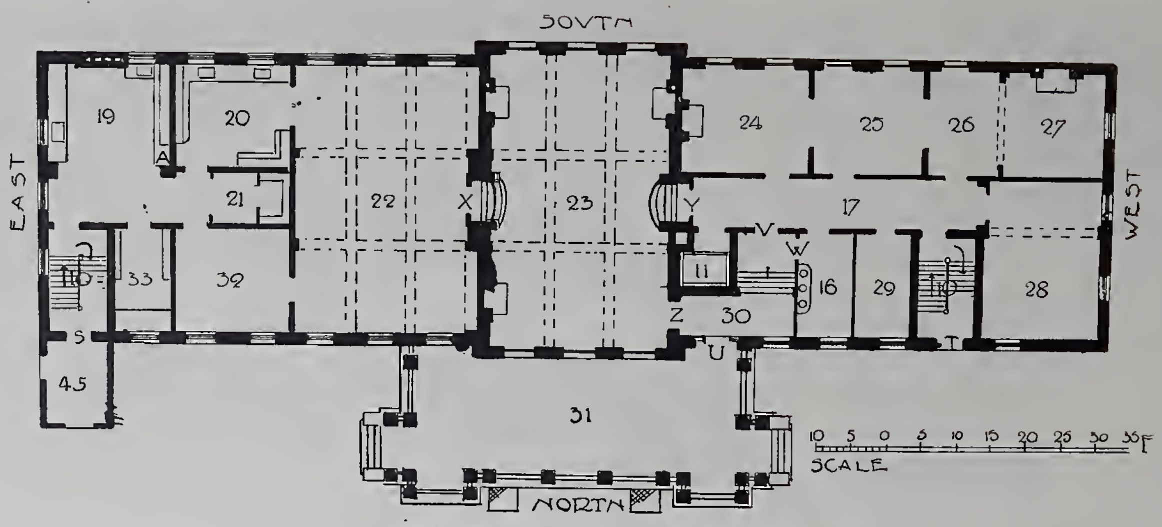
Plan No. 11—Drug Department.



BASEMENT PLAN

Plan No. 12—Nurses' Residence at Hospital for Sick Children, Toronto.

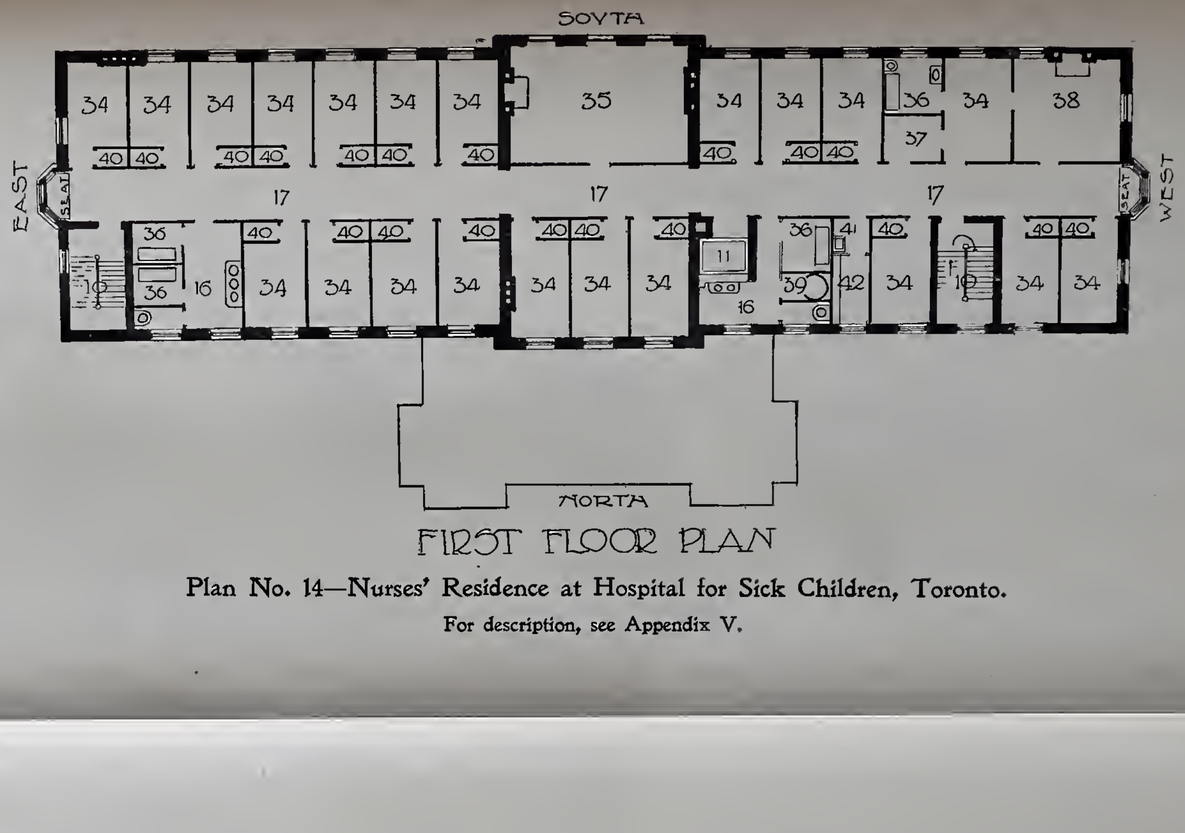
For description, see Appendix V.



GROUND FLOOR PLAN

Plan No. 13—Nurses' Residence at Hospital for Sick Children, Toronto.

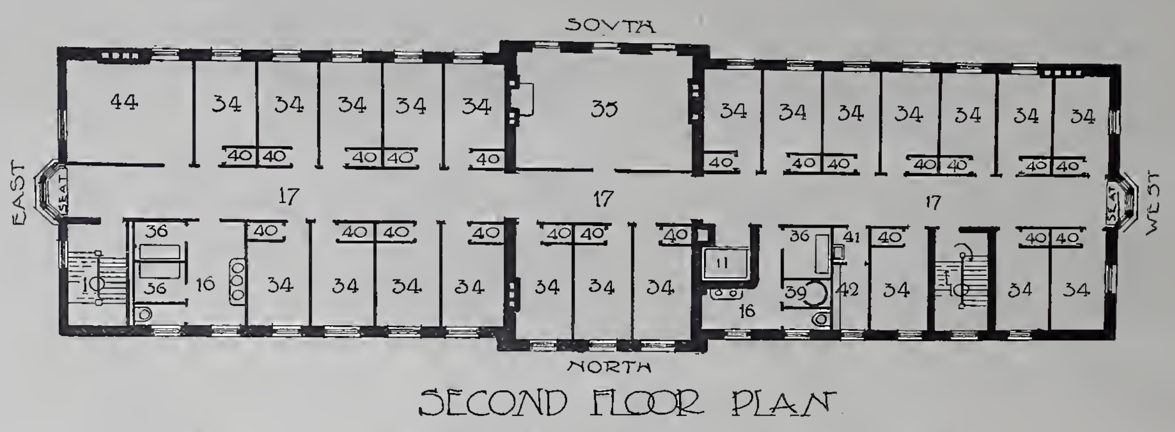
For description, see Appendix V.



FIRST FLOOR PLAN

Plan No. 14—Nurses' Residence at Hospital for Sick Children, Toronto.

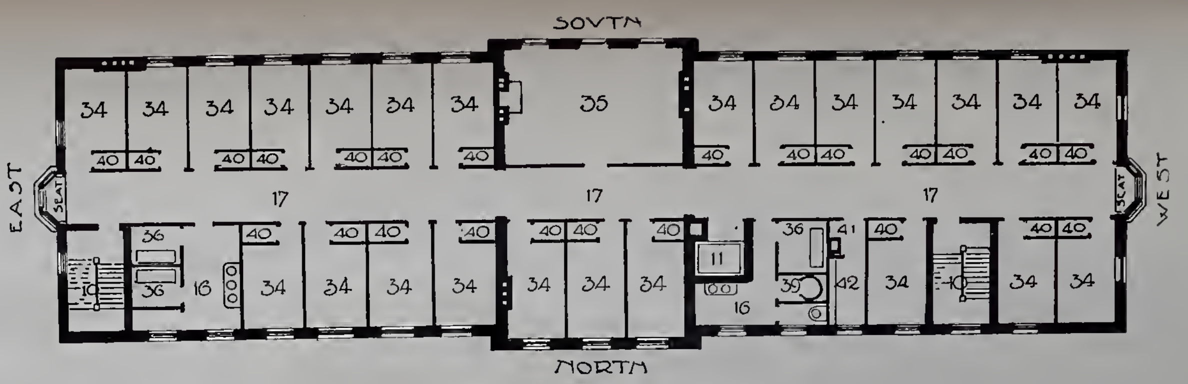
For description, see Appendix V.



SECOND FLOOR PLAN

Plan No. 15—Nurses' Residence at Hospital for Sick Children, Toronto.

For description, see Appendix V.



THIRD FLOOR PLAN

Plan No. 16—Nurses' Residence at Hospital for Sick Children, Toronto.

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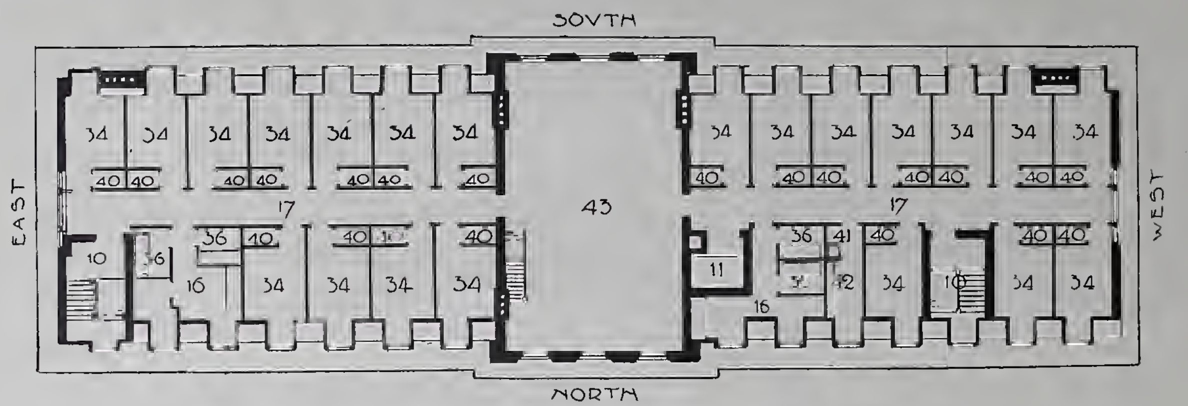

FOURTH FLOOR PLAN

Plan No. 17—Nurses' Residence at Hospital for Sick Children, Toronto.

For description, see Appendix V.

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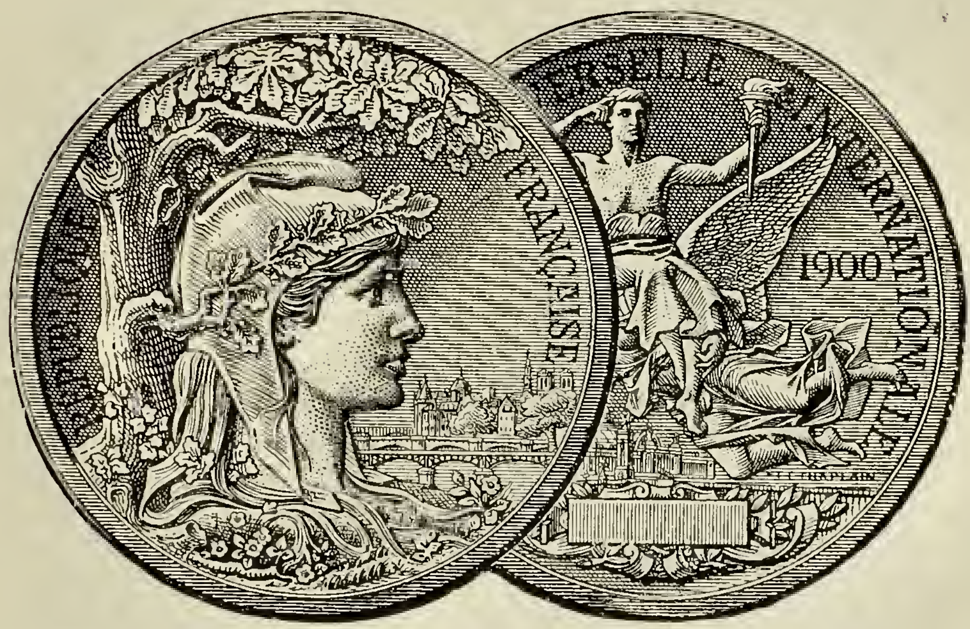

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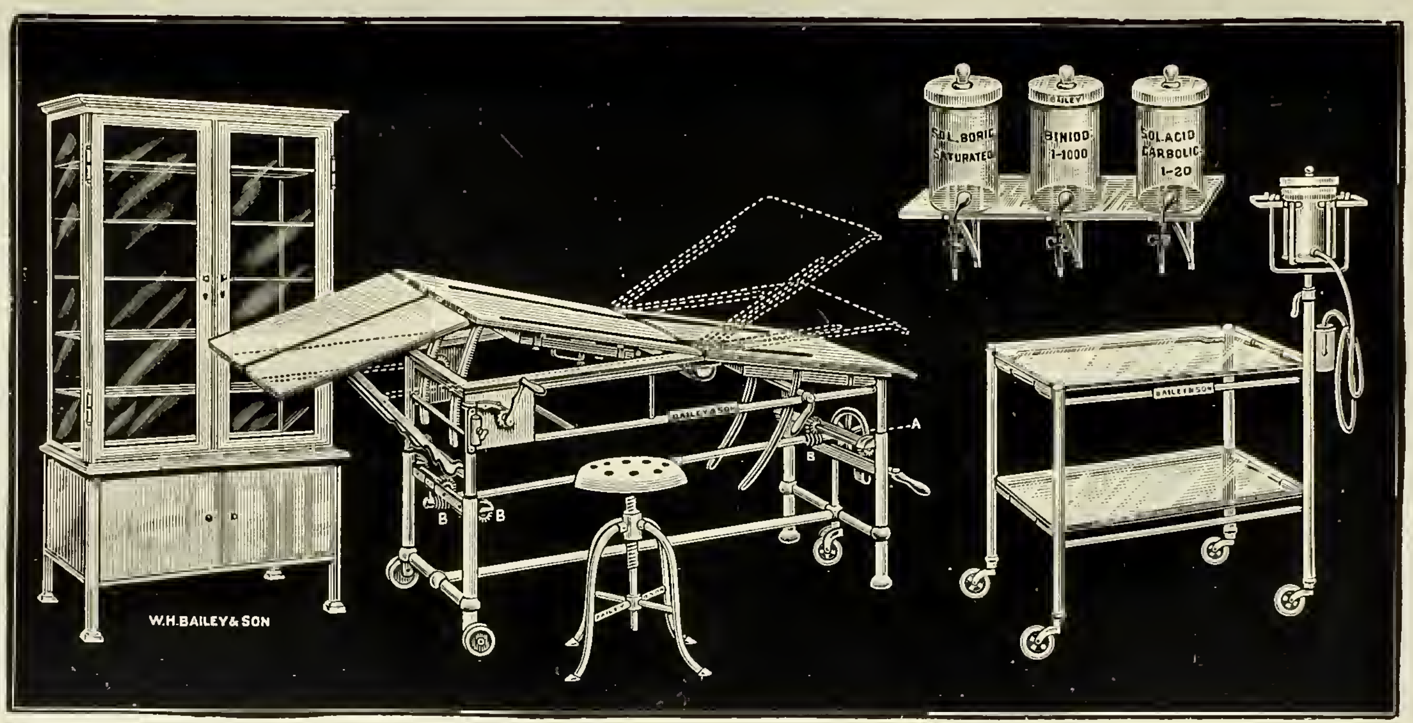

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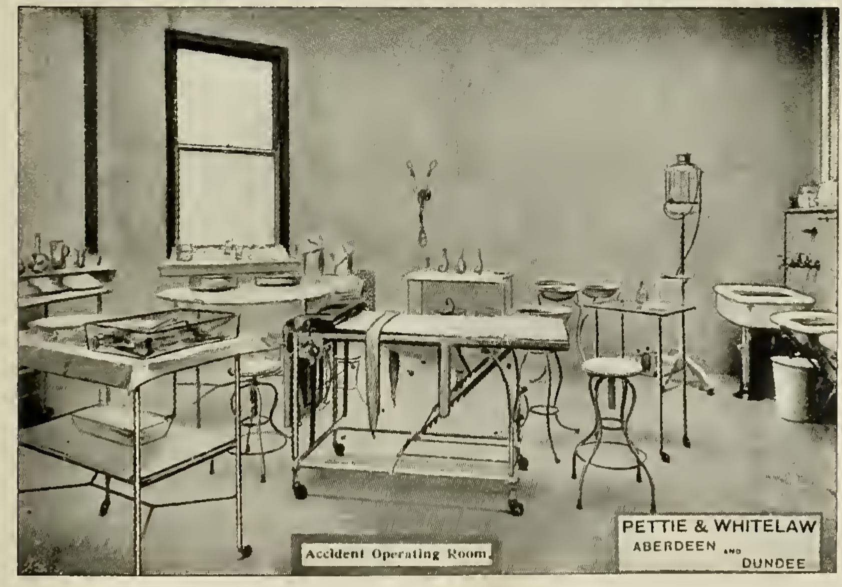

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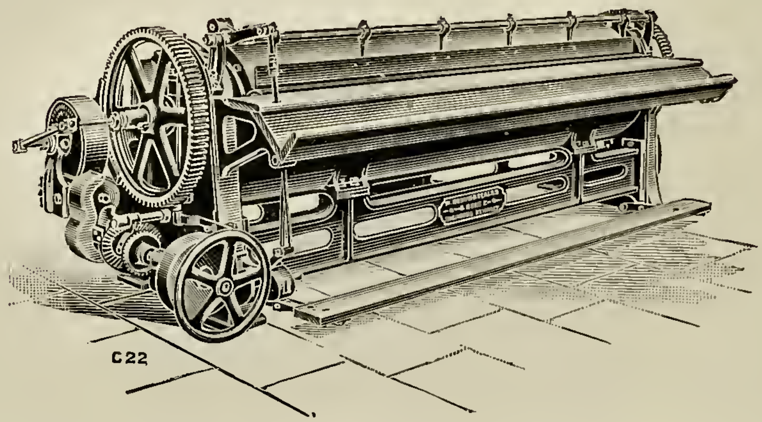

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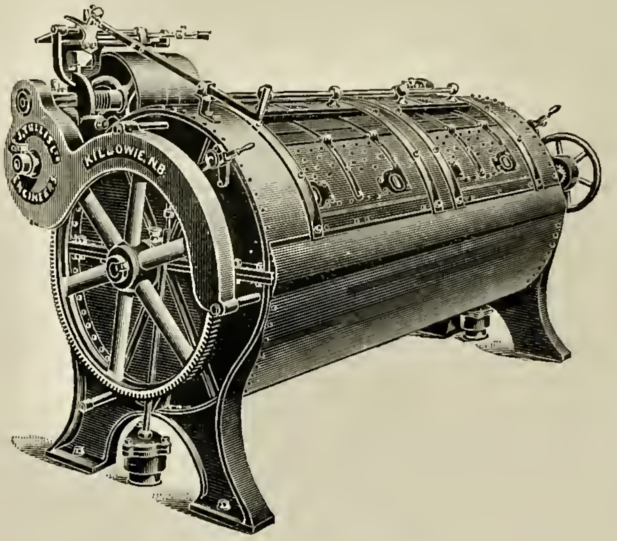

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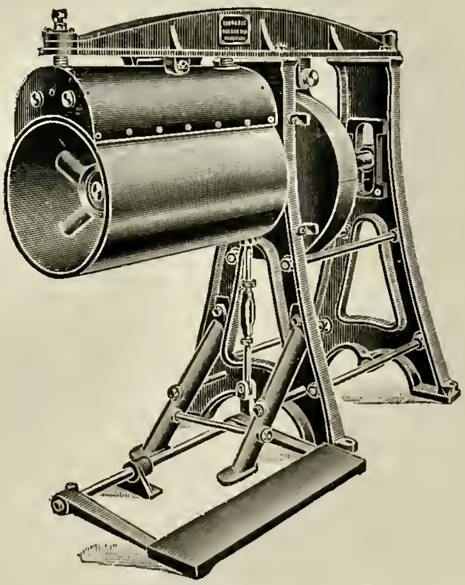

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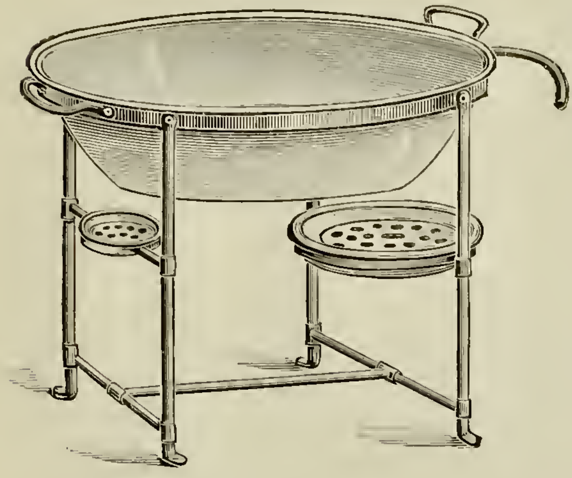

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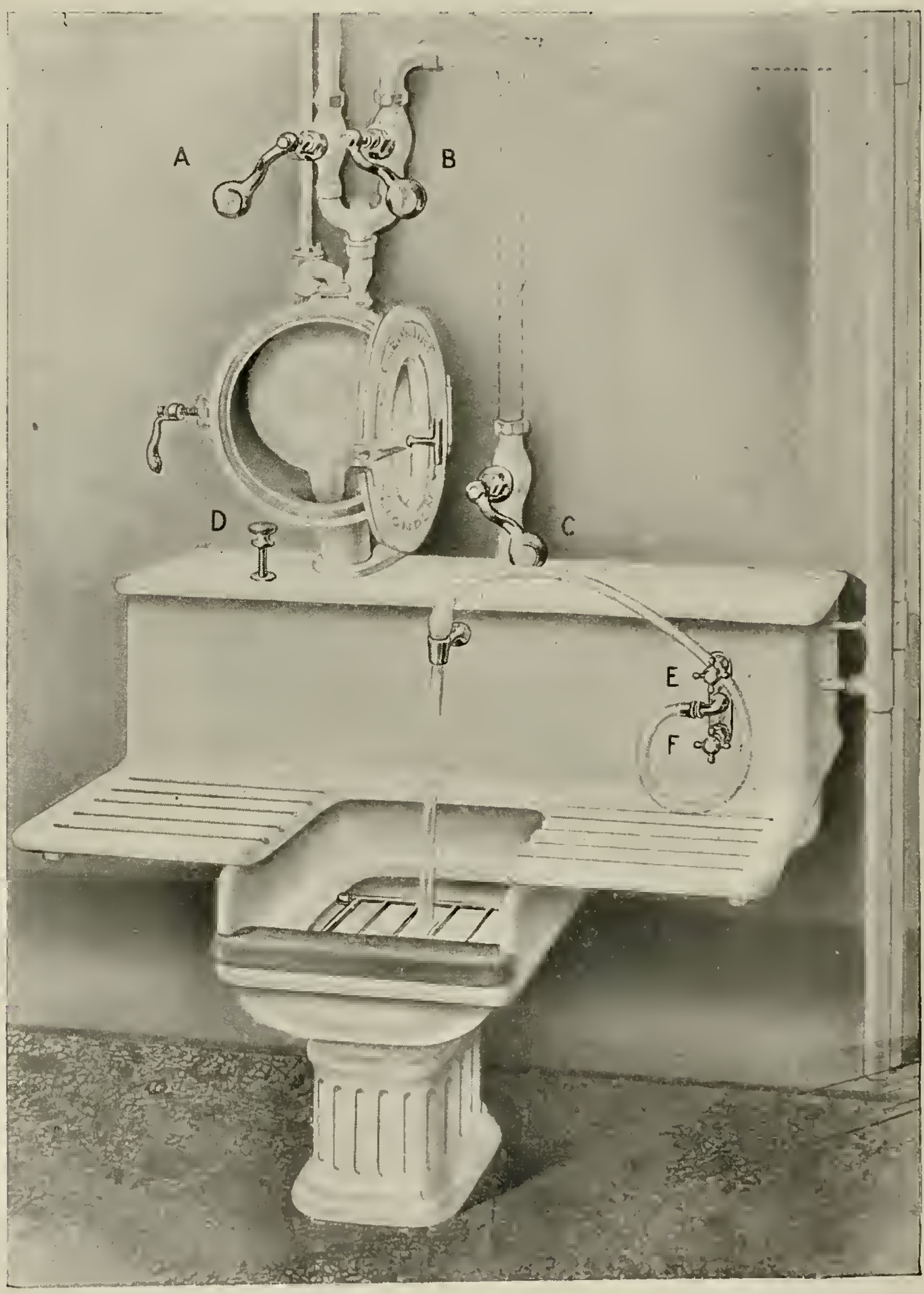

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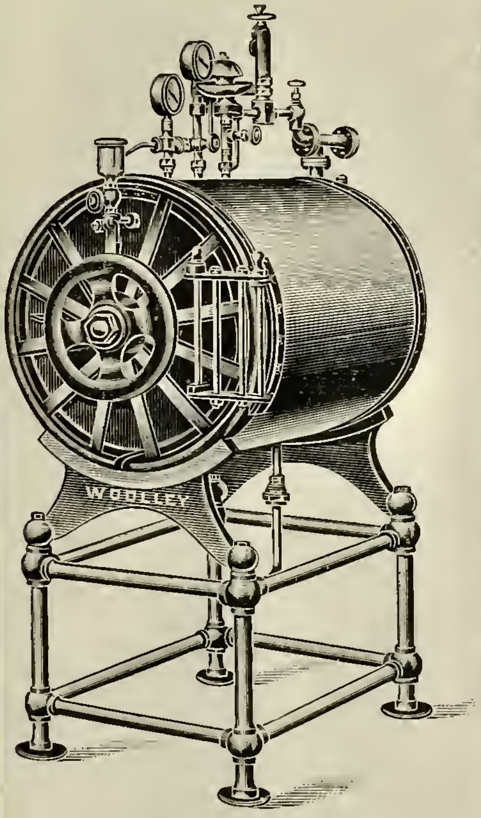

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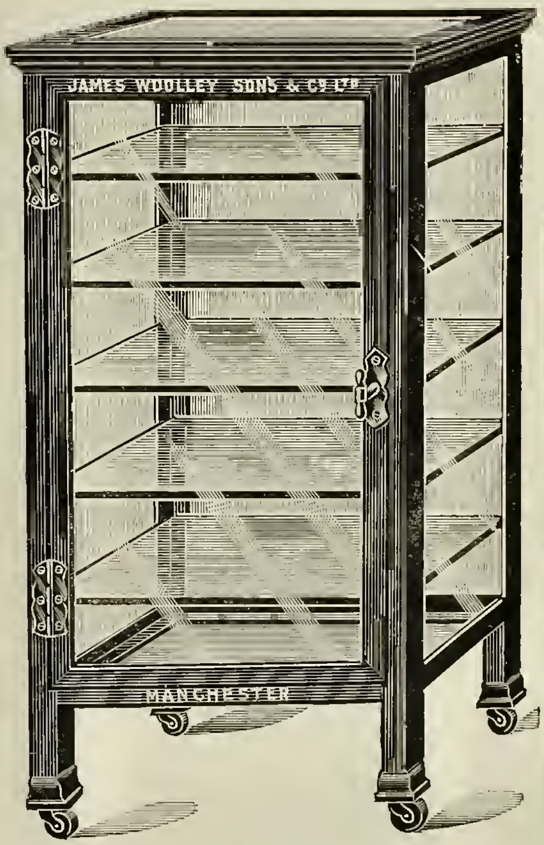
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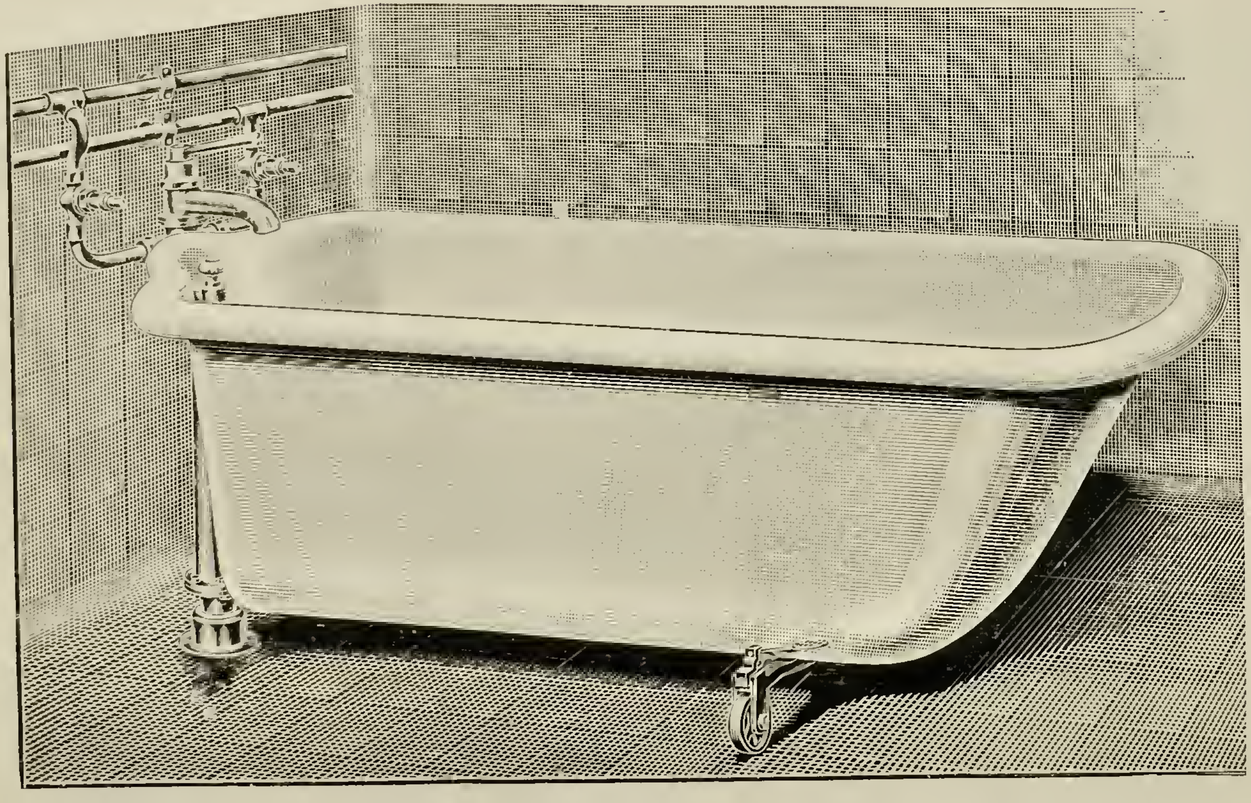

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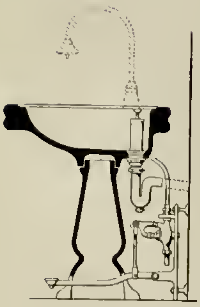

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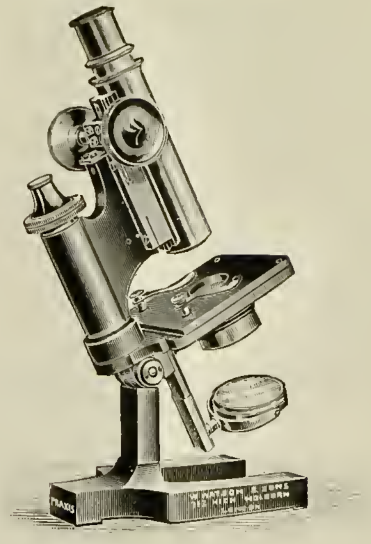

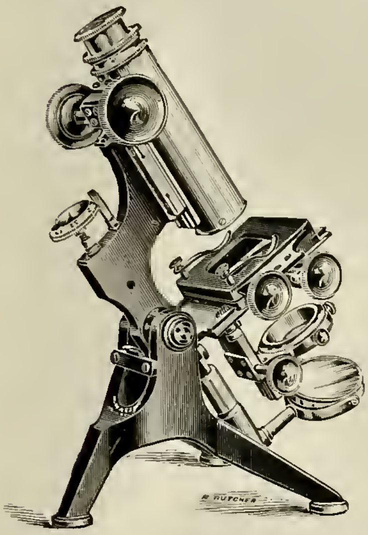

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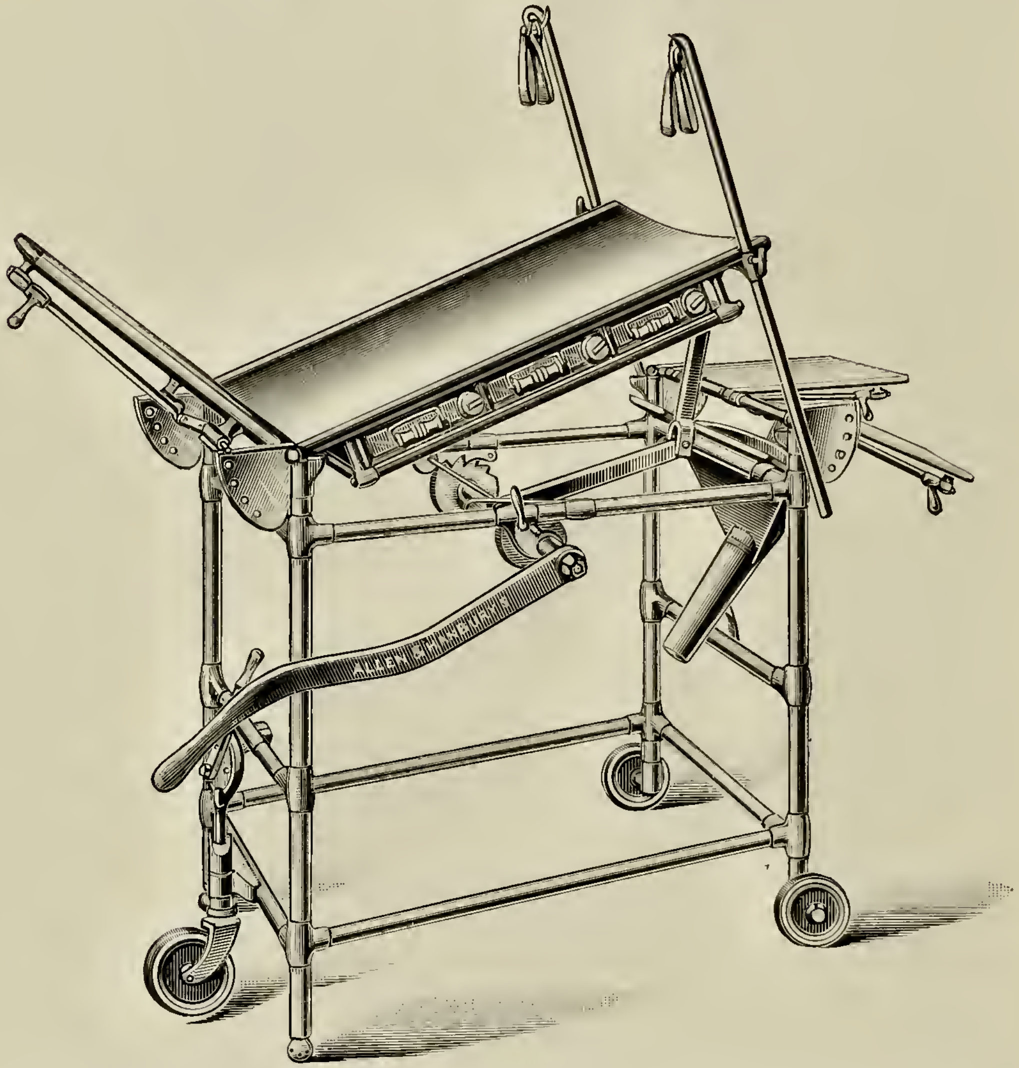

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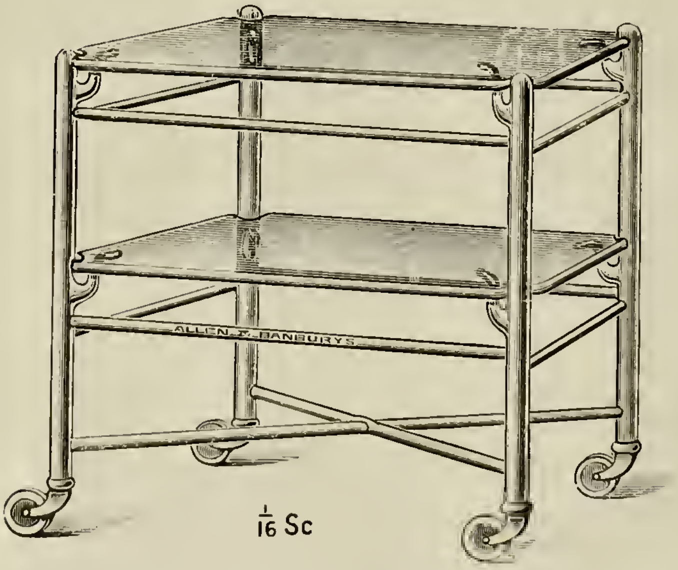

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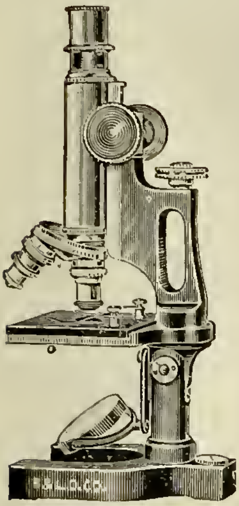

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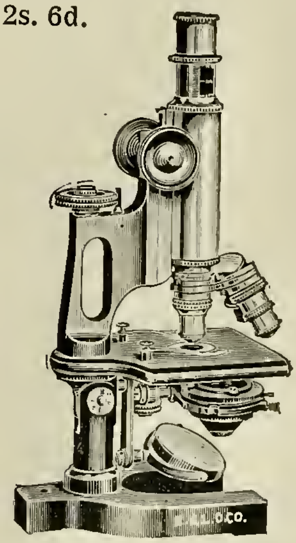

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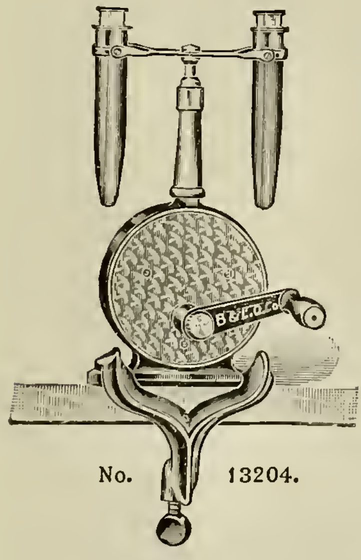

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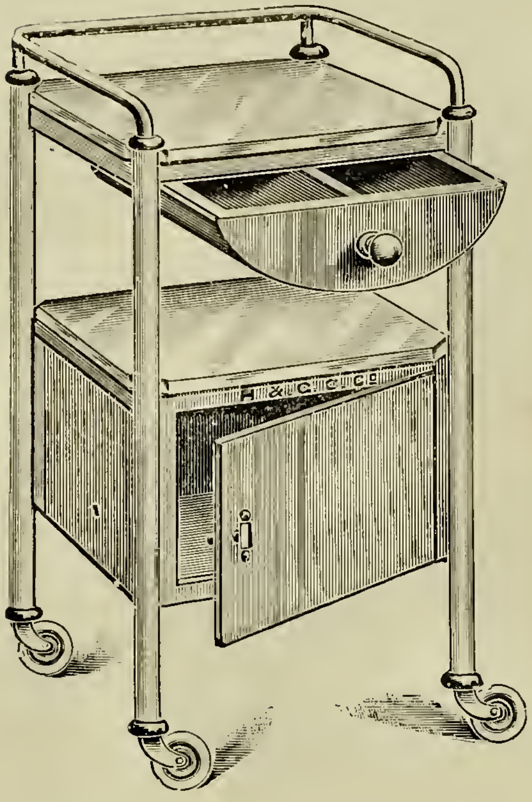

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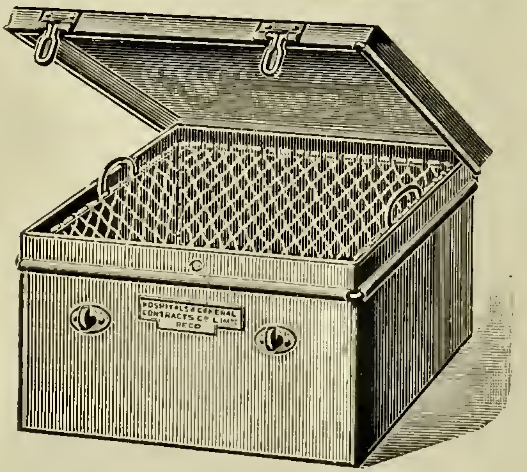

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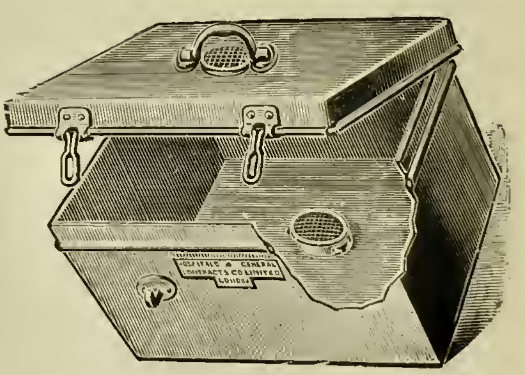

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